RK611

DISKLESS CONTROL PART 1

CZR6ACO

AH-9339C-MC

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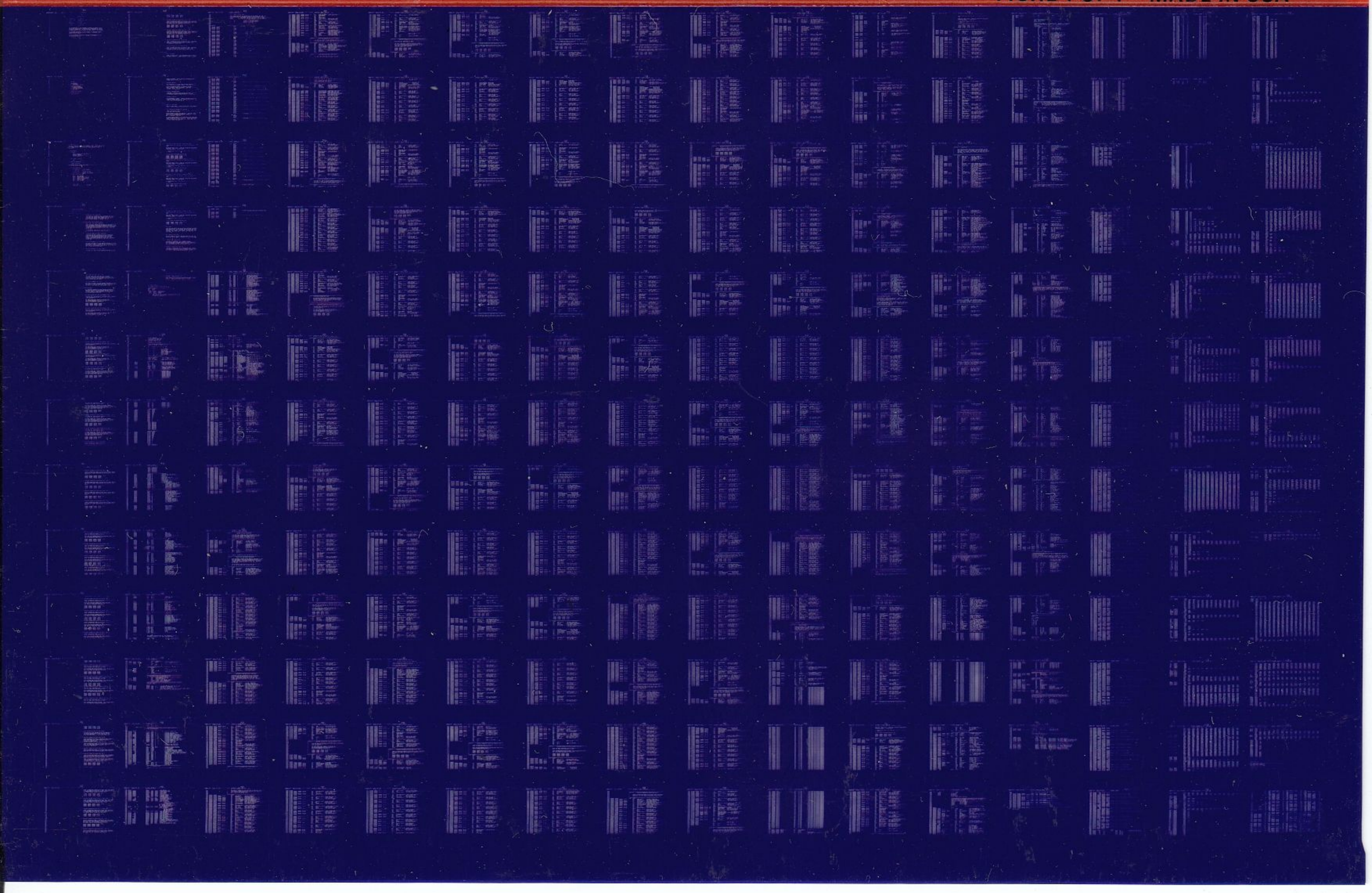
MADE IN USA



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IDENTIFICATION

PRODUCT CODE: AC-5338C-MC

PRODUCT NAME: CZR6AC0 RK611 DSKLS CTR PRT 1

DATE: FEB 1978

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: ROY SPITZER

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                                1.0 ABSTRACT

                THE RK611 DISKLESS CONTROLLER DIAGNOSTIC: PART 1 READS AND WRITES
                EVERY RK611 REGISTER, TESTS THE INTERRUPT MECHANISM, AND TEST THE
                SILO LOADING LOGIC.  NO RK06 DRIVE IS REQUIRED FOR PROGRAM
                EXECUTION.


                                2.0 REQUIREMENTS

                2.1 EQUIPMENT

                        PDP-11 SYSTEM (16K CORE MEMORY)
                        CONSOLE TERMINAL
                        DECTAPE, PAPER TAPE READER, OR DECDISK
                        RK611 CONTROLLER


                2.2 PRELIMINARY PROGRAMS

                        NONE

                                3.0 OPERATING PROCEDURES

                3.1 LOADING PROCEDURE

                THE PROGRAM CAN BE LOADED FROM PAPER TAPE USING ABSOLUTE LOADER
                OR FROM XXDP MEDIA SUPPORTED BY XXDP.


                3.2 STARTING PROCEDURE

                        LOCATION 200    - START PROGRAM

                        LOCATION 204    - RESTART PROGRAM

                        LOCATION 214    - REQUEST BUS ADDRESS, VECTOR ADDRESS, AND
                                          PRIORITY MODIFICATION
                3.3 OPTIONAL SWITCH SETTINGS

                        SW15 -  HALT PROGRAM
                        SW14 -  LOOP ON TEST
                        SW13 -  INHIBIT ERROR TYPE OUT
                        SW12 -  ABORT AFTER 20 ERRORS
                        SW11 -  INHIBIT ITERATION COUNT
                        SW10 -  BELL ON ERROR
                        SW9  -  LOOP ON ERROR
                        SW8  -  LOOP ON TEST IN SWITCHES 0-7


                3.5 RUN TIME

                        FIRST PASS              7 SECONDS
                        SUBSEQUENT PASSES       2 MINUTES
```

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                        4.0     OPERATING PROCEDURES

                        THE PROGRAM IS EXECUTED BY STARTING AT THE APPROPIATE ADDRESS.

                        5.0 PROGRAM DESCRIPTION

                                        TEST 1  ADDRESS ALL RK611 REGISTERS

                                                THIS TEST WILL ACCESS ALL RK611 REGISTERS AND CHECK TO
                                                MAKE SURE THAT NON-EXISTENT MEMORY DOES NOT OCCUR.
                                                A NON-EXISTENT MEMORY INDICATES EITHER THAT THE RK611
                                                REGISTER BASE ADDRESS IS INCORRECT OR THAT THE
                                                RK611 DOES NOT RESPOND TO UNIBUS DIALOGUE.

                                **RESET, CONTROLLER CLEAR, AND TRI-STATE TESTS

                                        TEST 2  RESET RK611 AND VERIFY REGISTERS

                                                RESET THE RK611 CONTROLLER AND READ ALL REGISTER OF THE
                                                RK611 REGISTERS EXCEPT THE DATA BUFFER AND VERIFY THAT
                                                THEY ARE CORRECT.  REEXAMINE COMMAND AND STATUS REGISTER
                                                TO MAKE SURE CONTROLLER ERROR DID NOT SET.  REEXAMINE
                                                COMMAND AND STATUS REGISTER 2 TO MAKE SURE DATA LATE
                                                DID NOT SET.

                                                THE SUCCESSFUL EXECUTION OF THIS TEST VERIFIES THAT NO
                                                BIT OF THE TRI-STATE BUS IS STUCK TO ONE.

                                        TEST 3  CONTROLLER CLEAR AND VERIFY REGISTERS

                                                INITIALIZE THE RK611 CONTROLLER WITH A CONTROLLER
                                                CLEAR AND READ ALL REGISTER OF THE RK611 REGISTERS
                                                EXCEPT THE DATA BUFFER AND VERIFY THAT THEY ARE
                                                CORRECT.  REEXAMINE COMMAND AND STATUS REGISTER 1
                                                TO MAKE SURE CONTROLLER ERROR DID NOT SET.  REEXAMINE
                                                COMMAND AND STATUS REGISTER 2 TO MAKE SURE DATA LATE
                                                DID NOT SET.

                                        TEST 4  WRITE BUS ADDRESS WITH 177777 (PART 1)

                                                THIS TEST WILL WRITE THE BUS ADDRESS REGISTER TO 177777
                                                AND CHECK IF EQUAL TO 177776 AND THAT NO REGISTER INTERA
                                                TAKES PLACE. A RESET IS DONE AT THE END OF THE TEST TO
                                                MAKE SURE THE BUS ADDRESS CLEARS AND ALL RK611 REGISTERS
                                                ARE IN THEIR INITIALIZED STATE.

                                        TEST 5  WRITE BUS ADDRESS WITH 177777 (PART 2)

                                                THIS TEST WILL WRITE THE BUS ADDRESS REGISTER TO 177777.
                                                A CONTROLLER CLEAR IS DONE. MAKE SURE THE BUS ADDRESS CL
```

TEST 6 WRITE WORD COUNT REG. WITH 177777

THIS TEST WILL WRITE THE WORD COUNT REGISTER
TO 0 AND 177777 AND CHECK IF EQUAL TO 0 AND 177777
RESPECTIVELY AND THAT NO REGISTER INTERACTION TAKES PLAC
ISSUE A CONTROLLER CLEAR AND MADE SURE THAT THE WORD
COUNT REGISTER DOES NOT CHANGE.

TEST 7 WRITE DISK ADDRESS WITH 177777

THIS TEST WILL WRITE THE DISK ADDRESS REGISTER TO 177777
AND CHECK IF EQUAL TO 003437 AND THAT NO REGISTER INTERA
TAKES PLACE. A CONTROLLER CLEAR IS DONE AT THE END OF
THE TEST TO MAKE SURE THE DISK ADDRESS CLEARS.

**REGISTER INTERACTION TESTS

ALL REGISTER INTERACTION TESTS CONSISTS OF WRITING A
REGISTER AND CHECKING ITS CONTENTS AGAINST EXPECIED
CONTENTS. THEN ALL OTHER REGISTERS ARE READ EXCEPT
THE DATA BUFFER TO CHECK WHETHER THEY HAVE CHANGED FROM
THEIR INITIALIZED CONDITIONS.

TEST 10 REGISTER INTERACTION USING BUS ADDRESS (PART 1)

THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLE
CLEAR TO HE RK611 CONTROLLER. IT WILL THEN WRITE THE WO
COUNT REGISTER TO 0.

THE TEST ITSELF WILL CONSIST OF WRITING THE
BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS A
TEST IF BUS ADDRESS IS CORRECT AND THAT NO
REGISTER INTERACTION TAKES PLACE.

000000	000010	000200	004000	100000
000001	000020	000400	010000	
000002	000040	001000	020000	
000004	000100	002000	040000	

TEST 11 REGISTER INTERACTION USING BUS ADDRESS (PART 2)

THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLE
CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WO
COUNT REGISTER TO 0.

THE TEST ITSELF WILL CONSIST OF WRITING THE
BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS A
TEST IF BUS ADDRESS IS CORRECT AND THAT NO
REGISTER INTERACTION TAKES PLACE.

```
                                        177777  177767  177577  173777  077777
                                        177776  177757  177377  167777
                                        177775  177737  176777  157777
                                        177773  177677  175777  137777


TEST 12 REGISTER INTERACTION USING BUS ADDRESS (PART 3)

        THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLE
        CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WO
        COUNT REGISTER TO 0.

        THE TEST ITSELF WILL CONSIST OF WRITING THE
        BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS A
        TEST IF BUS ADDRESS IS CORRECT AND THAT NO
        REGISTER INTERACTION TAKES PLACE.

        000001  000037  000777  017777  000000
        000003  000077  001777  037777
        000007  000177  003777  077777
        000017  000377  007777  177777
TEST 13 REGISTER INTERACTION USING BUS ADDRESS (PART 4)

        THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLE
        CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WO
        COUNT REGISTER TO 0.

        THE TEST ITSELF WILL CONSIST OF WRITING THE
        BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS A
        TEST IF BUS ADDRESS IS CORRECT AND THAT NO
        REGISTER INTERACTION TAKES PLACE.

        100000  174000  177600  177770  000000
        140000  176000  177700  177774
        160000  177000  177740  177776
        170000  177400  177760  177777

TEST 14 REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 1)

        THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR
        BY WRITING THE WORD COUNT TO ZERO.

        THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
        AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
        SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
        THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
        REGISTER INTERACTION TAKES PLACE.

        000000  000020  000400  010000
        000002  000040  001000  020000
        000004  000100  002000  040000
        000010  000200  004000

TEST 15 REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 2)
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                        THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR
                        BY WRITING THE WORD COUNT TO ZERO.

                        THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
                        AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
                        SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
                        THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
                        REGISTER INTERACTION TAKES PLACE.

                        077776  077756  077376  067776
                        077774  077736  076776  057776
                        077772  077676  075776  037776
                        077766  077576  073776

TEST 16 REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 3)

                        THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR
                        BY WRITING THE WORD COUNT TO ZERO.

                        THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
                        AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
                        SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
                        THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
                        REGISTER INTERACTION TAKES PLACE.

                        000002  000076  001776  037776
                        000006  000176  003776  077776
                        000016  000376  007776  000000
                        000036  000776  017776

TEST 17 REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 4)

                        THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR
                        BY WRITING THE WORD COUNT TO ZERO.

                        THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
                        AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
                        SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
                        THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
                        REGISTER INTERACTION TAKES PLACE.

                        000000  074000  077600  077770
                        040000  076000  077700  077774
                        060000  077000  077740  077776
                        070000  077400  077760

TEST 20 REGISTER INTERACTION USING SPARE REG

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTE
                        WRITE THE WORD COUNT REGISTER WITH 0.

                        WRITE THE SPARE REGISTER WITH 177777 AND MAKE SURE
```

```
                        NO INTERACTION TAKES PLACE.


TEST 21 REGISTER INTERACTION USING WORD COUNT (PART 1)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGU
        AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
        PLACE.

        000000  000010  000200  004000  100000
        000001  000020  000400  010000
        000002  000040  001000  020000
        000004  000100  002000  040000


TEST 22 REGISTER INTERACTION USING WORD COUNT (PART 2)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGU
        AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
        PLACE.

        177777  177767  177577  173777  077777
        177776  177757  177377  167777
        177775  177737  176777  157777
        177773  177677  175777  137777


TEST 23 REGISTER INTERACTION USING WORD COUNT (PART 3)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGU
        AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
        PLACE.

        000001  000037  000777  017777  000000
        000003  000077  001777  037777
        000007  000177  003777  077777
        000017  000377  007777  177777


TEST 24 REGISTER INTERACTION USING WORD COUNT (PART 4)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGU
        AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
        PLACE.

        100000  174000  177600  177770  000000
        140000  176000  177700  177774
        160000  177000  177740  177776
        170000  177400  177760  177777
```

```
                        TEST 25 REGISTER INTERACTION USING DISK ADDRESS (PART 1)

                                ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
                                WRITE THE WORD COUNT REGISTER WITH 0.

                                WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
                                THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AN
                                SURE NO INTERACTION TAKES PLACE.

                                000000  000010  000200  004000  100000
                                000001  000020  000400  010000
                                000002  000040  001000  020000
                                000004  000100  002000  040000


                        TEST 26 REGISTER INTERACTION USING DISK ADDRESS (PART 2)

                                ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
                                WRITE THE WORD COUNT REGISTER WITH 0.

                                WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
                                THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AN
                                SURE NO INTERACTION TAKES PLACE.

                                177777  177767  177577  173777  077777
                                177776  177757  177377  167777
                                177775  177737  176777  157777
                                177773  177677  175777  137777


                        TEST 27 REGISTER INTERACTION USING DISK ADDRESS (PART 3)

                                ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
                                WRITE THE WORD COUNT REGISTER WITH 0.

                                WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
                                THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AN
                                SURE NO INTERACTION TAKES PLACE.

                                000001  000037  000777  017777  000000
                                000003  000077  001777  037777
                                000007  000177  003777  077777
                                000017  000377  007777  177777
                        TEST 30 REGISTER INTERACTION USING DISK ADDRESS (PART 4)

                                ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
                                WRITE THE WORD COUNT REGISTER WITH 0.

                                WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
                                THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AN
                                SURE NO INTERACTION TAKES PLACE.


                                100000  174000  177600  177770  000000
                                140000  176000  177700  177774
                                160000  177000  177740  177776
```

```
                        170000  177400  177760  177777


TEST 31 REGISTER INTERACTION USING ATTN/OFFSET (PART 1)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH 0.

        WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
        WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTEN
        MAKE SURE NO INTERACTION TAKES PLACE.

        000000  000010  000200  004000  100000
        000001  000020  000400  010000
        000002  000040  001000  020000
        000004  000100  002000  040000


TEST 32 REGISTER INTERACTION USING ATTN/OFFSET (PART 2)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH 0.

        WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
        WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTEN
        MAKE SURE NO INTERACTION TAKES PLACE.

        177777  177767  177577  173777  077777
        177776  177757  177377  167777
        177775  177737  176777  157777
        177773  177677  175777  137777
TEST 33 REGISTER INTERACTION USING ATTN/OFFSET (PART 3)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH 0.

        WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
        WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTEN
        MAKE SURE NO INTERACTION TAKES PLACE.

        000001  000037  000777  017777  000000
        000003  000077  001777  037777
        000007  000177  003777  077777
        000017  000377  007777  177777


TEST 34 REGISTER INTERACTION USING ATTN/OFFSET (PART 4)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTE
        WRITE THE WORD COUNT REGISTER WITH 0.

        WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
        WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTEN
        MAKE SURE NO INTERACTION TAKES PLACE.

        100000  174000  177600  177770  000000
```

```
                        140000  176000  177700  177774
                        160000  177000  177740  177776
                        170000  177400  177760  177777


TEST 35 REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 1

        RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
        WRITE THE WORD COUNT REGISTER WITH ZERO.

        WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING C
        SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND ST
        REG. 2 AND CHECK FOR REGISTER INTERACTION.

        000000  000010  000400  010000
        000001  000020  001000  020000
        000002  000100  002000  040000
        000004  000200  004000  100000


TEST 36 REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 2

        RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
        WRITE THE WORD COUNT REGISTER WITH ZERO.

        WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING C
        SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND ST
        REG. 2 AND CHECK FOR REGISTER INTERACTION.

        177737  177727  177337  167737
        177736  177717  176737  157737
        177735  177637  175737  137737
        177733  177537  173737  077737
TEST 37 REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 3

        RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
        WRITE THE WORD COUNT REGISTER WITH ZERO.

        WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING C
        SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND ST
        REG. 2 AND CHECK FOR REGISTER INTERACTION.

        000001  000037  001737  037737
        000003  000137  003737  077737
        000007  000337  007737  177737
        000017  000737  017737  000000

TEST 40 REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 4

        RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
        WRITE THE WORD COUNT REGISTER WITH ZERO.

        WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING C
        SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND ST
        REG. 2 AND CHECK FOR REGISTER INTERACTION.
```

```
                        100000  174000  177600  177734
                        140000  176000  177700  177736
                        160000  177000  177720  177737
                        170000  177400  177730  000000


TEST 41 CHECK SUBSYSTEM CLEAR WITH BUS ADDRESS

        THIS TEST WILL TEST THE ABILITY OF THE SUBSYSTEM CLEAR T
        INITIALIZE THE BUS ADDRESS REGISTER AND COMMAND
        AND STATUS REGISTER 1.  IT WILL ALSO VERIFY THAT ALL
        OTHER REGISTERS REMAIN IN THE INITIALIZED STATE.


TEST 42 REGISTER INTERACTION USING DRIVE STATUS

        ISSUE A CONTROLLER CLEAR TO ININITALIZE RK611 REGISTERS.
        WRITE WORD COUNT TO 0, WRITE DRIVE STATUS REGISTER
        WITH 177777 AND MAKE SURE IT REMAINS 0 AND NO
        INTERACTION TAKES PLACE.
TEST 43 REGISTER INTERACTION USING ERROR REGISTER

        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
        WRITE THE WORD COUNT REGISTER TO ZERO. WRITE ERROR REGIS
        WITH 177777 AND MAKE SURE IT REMAINS 0 AND NO
        INTERACTION TAKES PLACE.


TEST 44 REGISTER INTERACTION USING MAINT REG 2

        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
        WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
        REGISTER 2 TO 177777 AND NO INTERACTION TAKES PLACE.


TEST 45 REGISTER INTERACTION USING MAINT REG 3

        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
        WRITE THE WORD COUNT REGISTER TO ZERO, WRITE MAINTENANCE
        REGISTER 3 TO 177777 AND NO INTERACTION TAKES PLACE.
TEST 46 REGISTER INTERACTION WITH DISK CYLINDER (PART 1)

        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
        WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
        CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHEC
        ARE CORRECT AND NO INTERACTION TAKES PLACE.

        000000  000010  000200  004000  100000
        000001  000020  000400  010000
        000002  000040  001000  020000
        000004  000100  002000  040000


TEST 47 REGISTER INTERACTION WITH DISK CYLINDER (PART 2)
```

ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHEC
ARE CORRECT AND NO INTERACTION TAKES PLACE.

177777	177767	177577	173777	077777
177776	177757	177377	167777	
177775	177737	176777	157777	
177773	177677	175777	137777	

TEST 50 REGISTER INTERACTION WITH DISK CYLINDER (PART 3)

ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHEC
ARE CORRECT AND NO INTERACTION TAKES PLACE.

000001	000037	000777	017777	000000
000003	000077	001777	037777	
000007	000177	003777	077777	
000017	000377	007777	177777	

TEST 51 REGISTER INTERACTION WITH DISK CYLINDER (PART 4)

ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHEC
ARE CORRECT AND NO INTERACTION TAKES PLACE.

100000	174000	177600	177770	000000
140000	176000	177700	177774	
160000	177000	177740	177776	
170000	177400	177760	177777	

TEST 52 REGISTER INTERACTION USING MAINT REG 1 (PART 1)

ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF C
ARE CORRECT AND NO INTERACTION TAKES PLACE.

000000	000010	000200	004000	100000
000001	000020	000400	010000	
000002	000040	001000	020000	
000004	000100	002000	040000	

TEST 53 REGISTER INTERACTION USING MAINT REG 1 (PART 2)

ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF C
ARE CORRECT AND NO INTERACTION TAKES PLACE.

```
                        177777  177767  177577  173777  077777
                        177776  177757  177377  167777
                        177775  177737  176777  157777
                        177773  177677  175777  137777


                TEST 54 REGISTER INTERACTION USING MAINT REG 1 (PART 3)

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                        WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
                        REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF C
                        ARE CORRECT AND NO INTERACTION TAKES PLACE.

                        000001  000037  000777  017777  000000
                        000003  000077  001777  037777
                        000007  000177  003777  077777
                        000017  000377  007777  177777


                TEST 55 REGISTER INTERACTION USING MAINT REG 1 (PART 4)

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                        WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
                        REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF C
                        ARE CORRECT AND NO INTERACTION TAKES PLACE.

                        100000  174000  177600  177770  000000
                        140000  176000  177700  177774
                        160000  177000  177740  177776
                        170000  177400  177760  177777


                TEST 56 REGISTER INTERACTION WITH PATTERN REG.

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                        WRITE THE WORD COUNT WITH REGISTER TO ZERO. WRITE PATTER
                        REGISTER TO 177777 AND MAKE SURE IT REMAINS 0 AND
                        NO INTERACTION TAKES PLACE.


                TEST 57 REGISTER INTERACTION WITH POSITION REG.

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                        WRITE THE WORD COUNT WITH REGISTER TO ZERO. WRITE POSITI
                        REGISTER TO 177777 AND MAKE SURE IT STAYS AT THE
                        INITIALIZED CONDITION AND NO INTERACTION TAKES PLACE.


        **INTERRUPT TESTS

                TEST 60 RK611 INTERRUPT

                        STORE LOCATIONS 0-776, LOAD LOCATIONS 0-776 TO TRAP ALL
                        POSSIBLE INTERRUPTS.  LOWER PROCESSOR PRIORITY TO ZERO.
                        MAKE SURE THAT NO INTERRUPT OCCURS.  NOW SET INTERRUPT
```

```
                        ENABLE AND READY.  VERIFY THAT THE INTERRUPT OCCURS AT
                        PROPER VECTOR ADDRESS.  MAKE SURE THAT INTERRUPT IS
                        CLEARED AFTER IT IS GIVEN.


                TEST 61 INTERRUPT PRIORITY

                        SET UP PRIORITY TO 1 LESS THAN INTERRUPT PRIORITY.
                        WRITE READY WITH INTERRUPT ENABLE.  MAKE SURE INTERRUPT

                        NOW SET UP PRIORITY EQUAL TO INTERRUPT PRIORITY.
                        WRITE INTERRUPT ENABLE WITH READY.  MAKE SURE INTERRUPT
                        DOES NOT  OCCUR.  NOW LOWER PRIOIRY AND MAKE
                        INTERRUPT HAS BEEN STORED.


                TEST 62 SETTING INTERRUPT ENABLE

                        CLEAR RK611 CONTROLLER WITH CONTROLLER CLEAR. ALLOW RK61
                        INTERRUPTS BY SETTING PROCESSOR PRIORITY TO ZERO.
                        SET INTERRUPT ENABLE AND MAKE SURE NO INTERRUPTS OCCUR.


                TEST 63 INTERRUPT CLEARING

                        SET UP PRIORITY TO SEVEN.  CREATE INTERRUPT BY SETTING
                        INTERRUPT ENABLE  READY.  AND CLEAR IT WITH CONTROLLER
                        CLEAR. SET INTERRUPT ENABLE.  NOW LOWER PRIORITY
                        TO MAKE SURE NO INTERRUPT OCCURS.


        **SILO  TESTS

                TEST 64 READ SILO WHEN EMPTY

                        READ SILO WHEN EMPTY.  CHECK FOR DATA LATE AND CONTROLLE
                        ERROR.  ISSUE CONTROLLER CLEAR AND CHECK IF ERROR RESET.


                TEST 65 SILO LOADING AND UNLOADING OF ONE WORD

                        ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 CONTROLLER.
                        CLEAR WORD COUNT REGISTER.

                        WRITE A WORD OF 177777 INTO THE SILO.  CHECK ALL OTHER
                        REGISTERS FOR INTERACTION PROBLEMS.  CHECK THAT OUTPUT
                        READY IS SET IN COMMAND AND STATUS REGISTER 2.  IF NOT
                        WAIT A REASONABLE TIME FOR IT.

                        IF OUTPUT READY COMES UP IN A REASONABLE TIME, READ BACK
                        CONTENTS AND MAKE SURE IT IS 177777.  CHECK FOR NO CONTR
                        ERROR, NO DATA LATE, INPUT READY SET, OUTPUT READY RESET
                        NOW READ ANOTHER WORD FROM THE SILO TO MAKE SURE DATA
                        LATE AND CONTROLLER ERROR SET.
```

```
TEST 66 ONE WORD SILO WRITE AND REG. INTERACTION (PART 1)

        ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
        ZERO.

        WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERAC
        PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
        STATUS REGISTER 2.  IF NOT WAIT.

        IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
        IF CORRECT.


        THE FOLLOWING CONFIGURATIONS ARE USED:

        000000  000010  000200  004000  100000
        000001  000020  000400  010000
        000002  000040  001000  020000
        000004  000100  002000  040000
TEST 67 ONE WORD SILO WRITE AND REG. INTERACTION (PART 2)

        ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
        ZERO.

        WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERAC
        PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
        STATUS REGISTER 2.  IF NOT WAIT.

        IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
        IF CORRECT.

        THE FOLLOWING CONFIGURATIONS ARE USED:

        177777  177767  177577  173777  077777
        177776  177757  177377  167777
        177775  177737  176777  157777
        177773  177677  175777  137777


TEST 70 ONE WORD SILO WRITE AND REG. INTERACTION (PART 3)

        ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
        ZERO.

        WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERAC
        PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
        STATUS REGISTER 2.  IF NOT WAIT.

        IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
        IF CORRECT.

        THE FOLLOWING CONFIGURATIONS ARE USED:

        000001  000037  000777  017777  000000
        000003  000077  001777  037777
        000007  000177  003777  077777
```

```
                                        000017  000377  007777  177777


TEST 71 ONE WORD SILO WRITE AND REG. INTERACTION (PART 4)

        ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
        ZERO.

        WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERAC
        PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
        STATUS REGISTER 2.  IF NOT WAIT.

        IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
        IF CORRECT.

        THE FOLLOWING CONFIGURATIONS ARE USED:

        100000  174000  177600  177770  000000
        140000  176000  177700  177774
        160000  177000  177740  177776
        170000  177400  177760  177777


TEST 72 SILO FILL

        THIS TEST WILL WRITE THE SILO WITH 66 DIFFERENT PATTERNS
        CHECK INPUT READY, OUTPUT READY, AND DATA LATE FOR EACH
        WORD WRITTEN.  IT WILL THEN READ ALL 66 WORDS BACK CHECK
        CONTENTS, INPUT READY, OUTPUT READY, AND DATA LATE FOR E
        WORD READ.  AN EXTRA READ IS THEN DONE TO MAKE SURE THE
        SILO IS EMPTY.


TEST 73 SILO CAPACITY DATA LATE

        WRITE 67 WORDS IN THE SILO AND MAKE SURE DATA LATE ONLY
        OCCURS ON THE 67TH WORD.  CLEAR RK611 WITH CONTROLLER CL
        CHECK INPUT READY AND OUTPUT READY FOR INITIALIZED STATE


TEST 74 INTERRUPT DUE TO DATA LATE

        ALLOW RK611 INTERRUPTS.  SET INTERRUPT ENABLE.
        NOW READ ONE WORD FROM DATA BUFFER AND MAKE SURE THAT
        DATA LATE CAUSES INTERRUPT.  BEFORE CLEARING ERROR ALLOW
        RK611 INTERRUPTS AND MAKE SURE IT DOES NOT OCCUR AGAIN.
        NOW CLEAR CONTROLLER WITH A CONTROLLER CLEAR.


TEST 75 INTERRUPT CLEARING AND DATA LATE

        CLEAR RK611 CONTROLLER WITH A CONTROLLER CLEAR. CREATE
        A CONTROLLER ERROR (DATA LATE) BY READING THE DATA BUFFE
        WHEN EMPTY.  CLEAR RK611 CONTROLLER WITH A CONTROLLER CL
        SET INTERRUPT ENABLE AND LOWER PROCESSOR PRIORITY.
```

```
                                        MAKE SURE AN INTERRUPT DOES NOT OCCUR.


                                TEST 76 INTERRUPT ENABLE AND DATA LATE

                                        CLEAR RK611 CONTROLLER WITH A CONTROLLER CLEAR.  ALLOW
                                        RK611 INTERRUPTS.  READ DATA BUFFER TO GENERATE INTERRUP
                                        PENDING.  MAKE SURE INTERRUPT DOES NOT OCCUR.

                                        NOW SET INTERRUPT ENABLE AND MAKE SURE INTERRUPTS OCCURS



                        6.0 ERROR REPORTING

                        THE GENERAL FORMAT OF ERROR REPORTS IS:

                        OPERATION DESCRIPTION AND ERROR DESCRIPTION
                        TEST    ERROR
                        NUM     PC
                        XXXXXX  YYYYYY
                          EXPECT  ACTUAL  OTHER PERTENANT
                          REG     REG     INFORMATION
                          ZZZZZZ  WWWWWW  AAAAAA

                        NOTE:   MORE THAN ONE SET OF EXPECT/ACTUAL REGISTERS MAY BE
                                PRINTED OUT. OTHER PERTENANT INFORMATION MAY CONSIST
                                OF MORE THAN ONE WORD.

                                [ END OF DOCUMENT ]

                        %
```

```
                        ;*** REV 003 ***
                        .TITLE  CZR6ACO RK611 DSKLS CTRL PRT1
                        ;*COPYRIGHT (C) 1976,1977
                        ;*DIGITAL EQUIPMENT CORP.
                        ;*MAYNARD, MASS. 01754
                        ;*
                        ;*PROGRAM BY ROY SPITZER
                        ;*
                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                        ;*PACKAGE (MAINDEC-11-DZQAC-C3), JAN 19, 1977.
                        ;*
                        .SBTTL  OPERATIONAL SWITCH SETTINGS
                        ;*
                        ;*      SWITCH                  USE
                        ;*      ------          --------------------
                        ;*        15            HALT ON ERROR
                        ;*        14            LOOP ON TEST
                        ;*        13            INHIBIT ERROR TYPEOUTS
                        ;*        12            ABORT PROGRAM AFTER 20 ERRORS
                        ;*        11            INHIBIT ITERATIONS
                        ;*        10            BELL ON ERROR
                        ;*         9            LOOP ON ERROR
                        ;*         8            LOOP ON TEST IN SWR<7:0>
                        .SBTTL  BASIC DEFINITIONS

                        ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
001100                  STACK=  1100
                        .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
                        .EQUIV  IOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL

                        ;*MISCELLANEOUS DEFINITIONS
000011                  HT=     11              ;;CODE FOR HORIZONTAL TAB
000012                  LF=     12              ;;CODE FOR LINE FEED
000015                  CR=     15              ;;CODE FOR CARRIAGE RETURN
000200                  CRLF=   200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
177776                  PS=     177776          ;;PROCESSOR STATUS WORD
                        .EQUIV  PS,PSW
177774                  STKLMT= 177774          ;;STACK LIMIT REGISTER
177772                  PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
177570                  DSWR=   177570          ;;HARDWARE SWITCH REGISTER
177570                  DDISP=  177570          ;;HARDWARE DISPLAY REGISTER

                        ;*GENERAL PURPOSE REGISTER DEFINITIONS
000000                  R0=     %0              ;;GENERAL REGISTER
000001                  R1=     %1              ;;GENERAL REGISTER
000002                  R2=     %2              ;;GENERAL REGISTER
000003                  R3=     %3              ;;GENERAL REGISTER
000004                  R4=     %4              ;;GENERAL REGISTER
000005                  R5=     %5              ;;GENERAL REGISTER
000006                  R6=     %6              ;;GENERAL REGISTER
000007                  R7=     %7              ;;GENERAL REGISTER
000006                  SP=     %6              ;;STACK POINTER
000007                  PC=     %7              ;;PROGRAM COUNTER

                        ;*PRIORITY LEVEL DEFINITIONS
000000                  PR0=    0               ;;PRIORITY LEVEL 0
```

```
                                PR1=    40              ;;PRIORITY LEVEL 1
                                PR2=    100             ;;PRIORITY LEVEL 2
                                PR3=    140             ;;PRIORITY LEVEL 3
                                PR4=    200             ;;PRIORITY LEVEL 4
                                PR5=    240             ;;PRIORITY LEVEL 5
                                PR6=    300             ;;PRIORITY LEVEL 6
                                PR7=    340             ;;PRIORITY LEVEL 7

                                ;*"SWITCH REGISTER" SWITCH DEFINITIONS
                                SW15=   100000
                                SW14=   40000
                                SW13=   20000
                                SW12=   10000
                                SW11=   4000
                                SW10=   2000
                                SW09=   1000
                                SW08=   400
                                SW07=   200
                                SW06=   100
                                SW05=   40
                                SW04=   20
                                SW03=   10
                                SW02=   4
                                SW01=   2
                                SW00=   1
                                .EQUIV  SW09,SW9
                                .EQUIV  SW08,SW8
                                .EQUIV  SW07,SW7
                                .EQUIV  SW06,SW6
                                .EQUIV  SW05,SW5
                                .EQUIV  SW04,SW4
                                .EQUIV  SW03,SW3
                                .EQUIV  SW02,SW2
                                .EQUIV  SW01,SW1
                                .EQUIV  SW00,SW0

                                ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
                        100000  BIT15=  100000
                        040000  BIT14=  40000
                        020000  BIT13=  20000
                        010000  BIT12=  10000
                        004000  BIT11=  4000
                        002000  BIT10=  2000
                        001000  BIT09=  1000
                        000400  BIT08=  400
                        000200  BIT07=  200
                        000100  BIT06=  100
                        000040  BIT05=  40
                        000020  BIT04=  20
                        000010  BIT03=  10
                        000004  BIT02=  4
                        000002  BIT01=  2
                        000001  BIT00=  1
                                .EQUIV  BIT09,BIT9
                                .EQUIV  BIT08,BIT8
                                .EQUIV  BIT07,BIT7
```

```
                        .EQUIV  BIT06,BIT6
                        .EQUIV  BIT05,BIT5
                        .EQUIV  BIT04,BIT4
                        .EQUIV  BIT03,BIT3
                        .EQUIV  BIT02,BIT2
                        .EQUIV  BIT01,BIT1
                        .EQUIV  BIT00,BIT0

                        ;*BASIC "CPU" TRAP VECTOR ADDRESSES
000004                  ERRVEC= 4               ;;TIME OUT AND OTHER ERRORS
000010                  RESVEC= 10              ;;RESERVED AND ILLEGAL INSTRUCTIONS
000014                  TBITVEC=14              ;;"T" BIT
000014                  TRTVEC= 14              ;;TRACE TRAP
000014                  BPTVEC= 14              ;;BREAKPOINT TRAP (BPT)
000020                  IOTVEC= 20              ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
000024                  PWRVEC= 24              ;;POWER FAIL
000030                  EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
000034                  TRAPVEC=34              ;;"TRAP" TRAP
000060                  TKVEC=  60              ;;TTY KEYBOARD VECTOR
000064                  TPVEC=  64              ;;TTY PRINTER VECTOR
000240                  PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
000114                  MEMVEC= 114                     ;MEMORY PARITY VECTOR
172100                  MEMBAS= 172100                  ;MEMORY PARITY BASE ADDDRESS
000001                  PAR.EN= 1                       ;ALLOW MEMORY PARITY OPTION
120210                  AVECT1= 120210                  ;DEFINE RK611 VECTOR ADDRESS
000005                  APRIOR= 5                       ;DEFINE RK611 PRIORITY
177440                  ABASE=  177440                  ;DEFINE BASE OF RK611 REGISTERS

                        .SBTTL  RK611 CONTROLLER REGISTER DEFINITION

000000                  RKCS1=  0               ;CONTROL AND STATUS REGISTER 1
000002                  RKWC=   2               ;WORD COUNT REGISTER
000004                  RKBA=   4               ;BUS ADDRESS REGISTER
000006                  RKDA=   6               ;DESIRED TRACK SECTOR REGISTER
000010                  RKCS2=  10              ;CONTROL AND STATUS REGISTER 2
000012                  RKDS=   12              ;DRIVE STATUS REGISTER
000014                  RKER=   14              ;ERROR REGISTER
000016                  RKASOF= 16              ;ATTENTION SUMMARY AND OFFSET REGISTER
000020                  RKDCYL= 20              ;DESIRED CYLINDER REGISTER
000024                  RKDB=   24              ;DATA BUFFER
000026                  RKMR1=  26              ;MAINTENANCE REGISTER 1
000034                  RKMR2=  34              ;MAINTENANCE REGISTER 2
000036                  RKMR3=  36              ;MAINTENANCE REGISTER 3
000030                  RKECPS= 30              ;ECC POSITION INFORMATION
000032                  RKECPT= 32              ;ECC PATTERN INFORMATION
000022                  RKSPAR= 22              ;SPARE REGISTER

                        .SBTTL  DRIVE COMMANDS

000001                  SELDRV= 01              ;SELECT DRIVE
000003                  PACK=   03              ;PACK ACKNOWLEDGE
000005                  CLEAR=  05              ;DRIVE CLEAR
000007                  UNLOAD= 07              ;UNLOAD
000011                  SRTSPL= 11              ;START SPINDLE
000013                  RECAL=  13              ;RECALIBRATE
000015                  OFFSET= 15              ;OFFSET
```

```
                        ;
                        ;       DRIVE COMMANDS
                        ;
000017          SEEK=   17                      ;SEEK
000021          RDDATA= 21                      ;READ DATA
000023          WRDATA= 23                      ;WRITE DATA
000025          RDHEAD= 25                      ;READ HEADER
000027          WRHEAD= 27                      ;WRITE HEADER AND DATA
000031          WRTCHK= 31                      ;WRITE CHECK
000300          INTR=   300                     ;GENERATE INTERRUPT TO CPU

                .SBTTL  CONTROL AND STATUS REGISTER 1 BITS

000001          GO=     BIT0                    ;GO BIT
000100          IE=     BIT6                    ;INTERRUPT ENABLE
000200          RDY=    BIT7                    ;CONTROLLER READY
000400          BA16=   BIT8                    ;BUS ADDRESS BIT 16
001000          BA17=   BIT9                    ;BUS ADDRESS BIT 17
002000          CDT=    BIT10                   ;CONTROLLER DRIVE TYPE (0=RK06)
004000          CTO=    BIT11                   ;CONTROLLER TIMED OUT WAITING FOR
                                                ;  DRIVE RESPONSE
010000          CFMT=   BIT12                   ;CONTROLLER DRIVE FORMAT (0=26 SECTOR, 1=24 SECTOR)
020000          SPAR=   BIT13                   ;DRIVE BUS PARITY ERROR DETECTED BY CONTROLLER
040000          DI=     BIT14                   ;DRIVE INTERRUPT
100000          CERR=   BIT15                   ;CONTROLLER ERROR
100000          CCLR=   BIT15                   ;CONTROLLER CLEAR

                .SBTTL  CONTROL AND STATUS REGISTER 2 BITS

000007          DRVMSK= 7                       ;MASK FOR DRIVE SELECTION CODE
000010          RLS=    BIT3                    ;DESELECT OR RELEASE DRIVE IN BITS 0-2
000020          BAI=    BIT4                    ;BUS ADDRESS INCREMENT INHIBIT
000040          SCLR=   BIT5                    ;CLEAR CONTROLLER AND ALL DRIVES
000100          IR=     BIT6                    ;INPUT READY
000200          OR=     BIT7                    ;OUTPUT READY
000400          UFE=    BIT8                    ;UNIT FIELD ERROR
001000          MDS=    BIT9                    ;MULTIPLE DRIVE SELECT
002000          PGE=    BIT10                   ;PROGRAMMING ERROR
004000          NEM=    BIT11                   ;NON-EXISTENT MEMORY
010000          NED=    BIT12                   ;NON-EXISTENT DRIVE
020000          UPE=    BIT13                   ;UNIBUS PARITY ERROR
040000          WCE=    BIT14                   ;WRITE CHECK ERROR
100000          DLT=    BIT15                   ;DATA LATE ERROR

                .SBTTL  ERROR REGISTER BIT DEFINITION

000001          ILF=    BIT0                    ;ILLEGAL FUNCTION CODE
000002          SKI=    BIT1                    ;SEEK INCOMPLETE
000004          NXF=    BIT2                    ;NON-EXECUTABLE DRIVE FUNCTION
000010          DRPAR=  BIT3                    ;DRIVE DETECTED DRIVE BUS PARITY ERROR
000020          FMTE=   BIT4                    ;FORMAT ERROR
000040          DTYE=   BIT5                    ;DRIVE TYPE ERROR
000100          ECH=    BIT6                    ;ECC HARD
000200          BSE=    BIT7                    ;BAD SECTOR ERROR
000400          HVRC=   BIT8                    ;HEADER VRC ERRROR
001000          COE=    BIT9                    ;CYLINDER ADDRESS OVERFLOW ERROR
002000          IDAE=   BIT10                   ;INVALID DISK ADDRESS ERROR
004000          WLE=    BIT11                   ;WRITE LOCK ERROR
010000          DTE=    BIT12                   ;DRIVE TIMING ERROR
```

```
1152            020000                  OPI=    BIT13                   ;OPERATION (SEARCH) INCOMPLETE
1153            040000                  UNS=    BIT14                   ;DRIVE UNSAFE
1154            100000                  DCK=    BIT15                   ;DATA CHECK
1155
1156                                    .SBTTL  STATUS REGISTER BIT DEFINITION
1157
1158            000001                  DRA=    BIT0                    ;DRIVE AVAILABLE (CONTROLLER IS SET IF
1159                                                                    ;  THIS BIT IS RESET)
1160            000004                  OFST=   BIT2                    ;DRIVE OFFSET
1161            000010                  ACLO=   BIT3                    ;AC LOW
1162            000020                  SPDLSS= BIT4                    ;SPEED LOSS
1163            000040                  DROT=   BIT5                    ;DRIVE OFF TRACK
1164            000100                  VV=     BIT6                    ;VOLUME VALID
1165            000200                  DRDY=   BIT7                    ;DRIVE READY
1166            000400                  DDT=    BIT8                    ;DRIVE TYPE (0=RK06)
1167            004000                  WRL=    BIT11                   ;WRITE LOCK
1168            020000                  PIP=    BIT13                   ;POSITIONING IN PROGRESS
1169            040000                  DSC=    BIT14                   ;DRIVE STATUS CHANGE
1170            100000                  SVAL=   BIT15                   ;STATUS VALID
1171
1172                                    .SBTTL  MAINTENANCE REGISTER 1 BIT DEFINITION
1173
1174            000017                  MESMSK= 17                      ;MESSAGE MASK
1175
1176            000020                  PAT=    BIT4                    ;FORCE EVEN PARITY ON DRIVE MESSAGE LINES
1177            000040                  DMD=    BIT5                    ;DIAGNOSTIC MODE
1178            000100                  MSP=    BIT6                    ;MAINTENANCE SECTOR PULSE
1179            000200                  MIND=   BIT7                    ;MAINTENANCE INDEX
1180            000400                  MCLK=   BIT8                    ;MAINTENANCE CLOCK
1181            001000                  MERD=   BIT9                    ;MAINTENANCE ENCODED READ DATA
1182            002000                  MEWD=   BIT10                   ;MAINTENACNE ENCODED WRITE DATA
1183            004000                  PCA=    BIT11                   ;PRECOMPENSATION ADVANCE
1184            010000                  PCD=    BIT12                   ;PRECOMPENSATION DELAY
1185            020000                  ECCW=   BIT13                   ;ECC WORD IS BEING READ OR WRITTEN
1186            040000                  WRTGAT= BIT14                   ;WRITE GATE
1187            100000                  RDGATE= BIT15                   ;READ GATE
1188
1189                                    .SBTTL  TRANSMITTED MESSAGE A
1190
1191            000020                  S.SEEK= BIT4                    ;SEEK COMMAND
1192            000040                  S.RECL= BIT5                    ;RECALIBRATE COMMAND
1193            000100                  S.STSP= BIT6                    ;START SPINDLE COMMAND
1194            000200                  S.RTC=  BIT7                    ;DRIVE RETURN TO CENTERLINE COMMAND
1195            000400                  S.CLR=  BIT8                    ;CLEAR ERROR AND DSC
1196            001000                  S.FMT=  BIT9                    ;FORMAT
1197            002000                  S.UNLD= BIT10                   ;UNLOAD
1198            004000                  S.PACK= BIT11                   ;SET VOLUME VALID (PACK ACKNOWNLEDGE)
1199                                    .SBTTL  TRAP CATCHER
1200
1201            000000                          .=0
1202                                    ;*ALL UNUSED LOCATIONS FROM 4 - 776 CONTAIN A ".+2,HALT"
1203                                    ;*SEQUENCE TO CATCH ILLEGAL TRAPS AND INTERRUPTS
1204                                    ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
1205            000174                          .=174
1206    000174  000000                  DISPREG: .WORD  0                ;;SOFTWARE DISPLAY REGISTER
1207    000176  000000                  SWREG:   .WORD  0                ;;SOFTWARE SWITCH REGISTER
```

```
                                .SBTTL  STARTING ADDRESS(ES)
000200  000137  002050                  JMP     @#START ;;JUMP TO STARTING ADDRESS OF PROGRAM
000204  000137  002040                  JMP     RESTRT          ;JUMP TO RESTART ROUTINE
        000214                          .=214
000214  000137  002030                  JMP     PARM            ;JUMP TO OPERATOR ASSIGNED PARMETERS
                                .SBTTL  ACT11 HOOKS

                                ;;******************************************************************
                                ;HOOKS REQUIRED BY ACT11
        000220                          $SVPC=.                 ;SAVE PC
        000046                          .=46
000046  055244                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
        000052                          .=52
000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
        000220                          .=$SVPC                 ;; RESTORE PC
        001000                          .=1000
                                .SBTTL  APT PARAMETER BLOCK

                                ;;******************************************************************
                                ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                                ;;******************************************************************
        001000                          .$X=.   ;;SAVE CURRENT LOCATION
        000024                          .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
000024  000200                          200     ;;FOR APT START UP
        000044                          .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
000044  001000                          $APTHDR ;;POINT TO APT HEADER BLOCK
        001000                          .=.$X   ;;RESET LOCATION COUNTER
                                ;;******************************************************************
                                ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                                ;INTERFACE SPEC.

001000                          $APTHD:
001000  000000                  $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
001002  001214                  $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
001004  000001                  $TSTM:  .WORD   1       ;;RUN TIM OF LONGEST TEST
001006  000007                  $PASTM: .WORD   7       ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
001010  000007                  $UNITM: .WORD   7       ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
001012  000032                          .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
```

```
                        .SBTTL  COMMON TAGS

                        ;;*****************************************************************
                        ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
                        ;*USED IN THE PROGRAM.

                001100          .=1100
001100                  $CMTAG:                 ;;START OF COMMON TAGS
001100  000000          .WORD   0
001102     000          $TSTNM: .BYTE   0       ;;CONTAINS THE TEST NUMBER
001103     000          $ERFLG: .BYTE   0       ;;CONTAINS ERROR FLAG
001104  000000          $ICNT:  .WORD   0       ;;CONTAINS SUBTEST ITERATION COUNT
001106  000000          $LPADR: .WORD   0       ;;CONTAINS SCOPE LOOP ADDRESS
001110  000000          $LPERR: .WORD   0       ;;CONTAINS SCOPE RETURN FOR ERRORS
001112  000000          $ERTTL: .WORD   0       ;;CONTAINS TOTAL ERRORS DETECTED
001114     000          $ITEMB: .BYTE   0       ;;CONTAINS ITEM CONTROL BYTE
001115     001          $ERMAX: .BYTE   1       ;;CONTAINS MAX. ERRORS PER TEST
001116  000000          $ERRPC: .WORD   0       ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001120  000000          $GDADR: .WORD   0       ;;CONTAINS ADDRESS OF 'GOOD' DATA
001122  000000          $BDADR: .WORD   0       ;;CONTAINS ADDRESS OF 'BAD' DATA
001124  000000          $GDDAT: .WORD   0       ;;CONTAINS 'GOOD' DATA
001126  000000          $BDDAT: .WORD   0       ;;CONTAINS 'BAD' DATA
001130  000000                  .WORD   0       ;;RESERVED--NOT TO BE USED
001132  000000                  .WORD   0
001134     000          $AUTOB: .BYTE   0       ;;AUTOMATIC MODE INDICATOR
001135     000          $INTAG: .BYTE   0       ;;INTERRUPT MODE INDICATOR
001136  000000                  .WORD   0
001140  177570          SWR:    .WORD   DSWR    ;;ADDRESS OF SWITCH REGISTER
001142  177570          DISPLAY: .WORD  DDISP   ;;ADDRESS OF DISPLAY REGISTER
001144  177560          $TKS:   177560          ;;TTY KBD STATUS
001146  177562          $TKB:   177562          ;;TTY KBD BUFFER
001150  177564          $TPS:   177564          ;;TTY PRINTER STATUS REG. ADDRESS
001152  177566          $TPB:   177566          ;;TTY PRINTER BUFFER REG. ADDRESS
001154     000          $NULL:  .BYTE   0       ;;CONTAINS NULL CHARACTER FOR FILLS
001155     002          $FILLS: .BYTE   2       ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001156     012          $FILLC: .BYTE   12      ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001157     000          $TPFLG: .BYTE   0       ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
001160  000000          $TMP0:  .WORD   0       ;;USER DEFINED
001162  000000          $TMP1:  .WORD   0       ;;USER DEFINED
001164  000000          $TMP2:  .WORD   0       ;;USER DEFINED
001166  000000          $TMP3:  .WORD   0       ;;USER DEFINED
001170  000000          $TMP4:  .WORD   0       ;;USER DEFINED
001172  000000          $TMP5:  .WORD   0       ;;USER DEFINED
001174  000000          $TMP6:  .WORD   0       ;;USER DEFINED
001176  000000          $TMP7:  .WORD   0       ;;USER DEFINED
001200  000000          $TIMES: 0               ;;MAX. NUMBER OF ITERATIONS
001202  000000          $ESCAPE:0               ;;ESCAPE ON ERROR ADDRESS
001204  177607  000377  $BELL:   .ASCIZ  <207><377><377>  ;;CODE FOR BELL
001210     077          $QUES:   .ASCII  /?/    ;;QUESTION MARK
001211     015          $CRLF:   .ASCII  <15>   ;;CARRIAGE RETURN
001212  000012          $LF:     .ASCIZ  <12>   ;;LINE FEED
                        ;;*****************************************************************
                        .SBTTL  APT MAILBOX-ETABLE

                        ;;*****************************************************************
                        .EVEN
```

```
1302  001214                  $MAIL:
1303  001214  000000          $MSGTY:  .WORD   AMSGTY   ;;APT MAILBOX
1304  001216  000000          $FATAL:  .WORD   AFATAL   ;;MESSAGE TYPE CODE
1305  001220  000000          $TESTN:  .WORD   ATESTN   ;;FATAL ERROR NUMBER
1306  001222  000000          $PASS:   .WORD   APASS    ;;TEST NUMBER
1307  001224  000000          $DEVCT:  .WORD   ADEVCT   ;;PASS COUNT
1308  001226  000000          $UNIT:   .WORD   AUNIT    ;;DEVICE COUNT
1309  001230  000000          $MSGAD:  .WORD   AMSGAD   ;;I/O UNIT NUMBER
1310  001232  000000          $MSGLG:  .WORD   AMSGLG   ;;MESSAGE ADDRESS
1311  001234                  $ETABLE:                  ;;MESSAGE LENGTH
1312  001234     000          $ENV:    .BYTE   AENV     ;;APT ENVIRONMENT TABLE
1313  001235     000          $ENVM:   .BYTE   AENVM    ;;ENVIRONMENT BYTE
1314  001236  000000          $SWREG:  .WORD   ASWREG   ;;ENVIRONMENT MODE BITS
1315  001240  000000          $USWR:   .WORD   AUSWR    ;;APT SWITCH REGISTER
1316  001242  000000          $CPUOP:  .WORD   ACPUOP   ;;USER SWITCHES
1317                                                    ;;CPU TYPE,OPTIONS
1318                                                    ;*  BITS 15-11=CPU TYPE
1319                                                    ;*          11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
1320                                                    ;*          11/70=06,PDQ=07,Q=10
1321                                                    ;*  BIT 10=REAL TIME CLOCK
1322                                                    ;*  BIT  9=FLOATING POINT PROCESSOR
1323  001244     000          $MAMS1:  .BYTE   AMAMS1   ;*  BIT  8=MEMORY MANAGEMENT
1324  001245     000          $MTYP1:  .BYTE   AMTYP1   ;;HIGH ADDRESS,M.S. BYTE
1325                                                    ;;MEM. TYPE,BLK#1
1326                                                    ;*  MEM.TYPE BYTE    --  (HIGH BYTE)
1327                                                    ;*          900 NSEC CORE=001
1328                                                    ;*          300 NSEC BIPOLAR=002
1329  001246  000000          $MADR1:  .WORD   AMADR1   ;*          500 NSEC MOS=003
1330                                                    ;;HIGH ADDRESS,BLK#1
1331  001250     000          $MAMS2:  .BYTE   AMAMS2   ;*  MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF "TYPE" ABOVE
1332  001251     000          $MTYP2:  .BYTE   AMTYP2   ;;HIGH ADDRESS,M.S. BYTE
1333  001252  000000          $MADR2:  .WORD   AMADR2   ;;MEM.TYPE,BLK#2
1334  001254     000          $MAMS3:  .BYTE   AMAMS3   ;;MEM.LAST ADDRESS,BLK#2
1335  001255     000          $MTYP3:  .BYTE   AMTYP3   ;;HIGH ADDRESS,M.S.BYTE
1336  001256  000000          $MADR3:  .WORD   AMADR3   ;;MEM.TYPE,BLK#3
1337  001260     000          $MAMS4:  .BYTE   AMAMS4   ;;MEM.LAST ADDRESS,BLK#3
1338  001261     000          $MTYP4:  .BYTE   AMTYP4   ;;HIGH ADDRESS,M.S.BYTE
1339  001262  000000          $MADR4:  .WORD   AMADR4   ;;MEM.TYPE,BLK#4
1340  001264  120210          $VECT1:  .WORD   AVECT1   ;;MEM.LAST ADDRESS,BLK#4
1341  001266  000000          $VECT2:  .WORD   AVECT2   ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
1342  001270  177440          $BASE:   .WORD   ABASE    ;;INTERRUPT VECTOR#2BUS PRIORITY#2
1343  001272  000000          $DEVM:   .WORD   ADEVM    ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
1344  001274  000000          $CDW1:   .WORD   ACDW1    ;;DEVICE MAP
1345  001276  000000          $CDW2:   .WORD   ACDW2    ;;CONTROLLER DESCRIPTION WORD#1
1346  001300                  $ETEND:                   ;;CONTROLLER DESCRIPTION WORD#2
1347                          .MEXIT
```

```
                                .SBTTL  ERROR POINTER TABLE

                                ;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
                                ;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
                                ;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
                                ;*NOTE1:        IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
                                ;*NOTE2:       EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:

                                ;*      EM              ;;POINTS TO THE ERROR MESSAGE
                                ;*      DH              ;;POINTS TO THE DATA HEADER
                                ;*      DT              ;;POINTS TO THE DATA
                                ;*      DF              ;;POINTS TO THE DATA FORMAT

001300                          $ERRTB:
                                ;       ERROR 1:  NEM ACCESSING RK611 REGISTER
001300  063251                          EM1
001302  000000                          0
001304  061416                          DT001
001306  061562                          DF001
                                ;       ERROR 2:   ATTEMPTING TO INITIALIZE RK611
001310  000000                  EM2N:   0
001312  000000                          0
001314  061424                          DT002
001316  061602                          DF002
                                ;       ERROR 3:   ATTEMPTING TO WRITE REG
001320  000000                  EM3N:   0
001322  000000                          0
001324  061434                          DT003
001326  061626                          DF003
                                ;       ERROR 4:   ATTEMPTING TO CLEAR RK611
001330  000000                  EM4N:   0
001332  000000                          0
001334  061446                          DT004
001336  061652                          DF004
                                ;       ERROR 5:        INTERRUPT DID NOT OCCUR
001340  064766                          EM24
001342  000000                          0
001344  061460                          DT005
001346  061676                          DF005
                                ;       ERROR 6:        UNEXPECTED INTERRUPT WHEN LOWERING PROCESSOR PRIORITY
001350  065060                          EM25
001352  000000                          0
001354  061464                          DT006
001356  061712                          DF006
                                ;       ERROR 7:        VECTOR ADDRESS INCORRECT
001360  065140                          EM26
001362  000000                          0
001364  061464                          DT006
001366  061712                          DF006
                                ;       ERROR 10:       INTERRUPT DID NOT CLEAR IN RK611
001370  065176                          EM27
001372  000000                          0
001374  061464                          DT006
001376  061712                          DF006
                                ;       ERROR 11:       EXPECTED INTERRUPT DID NOT OCCUR AT PROCESSOR PRIORITY
```

```
1404  001400  065232                    EM28
1405  001402  000000                    0
1406  001404  061474                    DT011
1407  001406  061736                    DF011
1408                          ;         ERROR 12:       UNEXPECTED INTERRUPT OCCURRED AT PROCESSOR PRIORITY
1409  001410  065314                    EM29
1410  001412  000000                    0
1411  001414  061474                    DT011
1412  001416  061736                    DF011
1413                          ;         ERROR 13:       INTERRUPT DID NOT OCCUR WHEN PRIORITY LOWERED
1414  001420  065373                    EM30
1415  001422  000000                    0
1416  001424  061474                    DT011
1417  001426  061736                    DF011
1418                          ;         ERROR 14:       SETTENG INTERRUPT ENABLE CAUSED EXPECTED INTERRUPT
1419  001430  065444                    EM31
1420  001432  000000                    0
1421  001434  061460                    DT005
1422  001436  061676                    DF005
1423                          ;         ERROR 15:       CONTROLLER CLEAR DID NOT CLEAR STORED INTERRUPT
1424  001440  065515                    EM32
1425  001442  000000                    0
1426  001444  061460                    DT005
1427  001446  061676                    DF005
1428                          ;         ERROR 16:       ATTEMPTING TO READ SILO WHEN EMPTY - CS2 INCORRECT
1429  001450  065632                    EM34
1430  001452  067072                    EM1009
1431  001454  061502                    DT016
1432  001456  061756                    DF016
1433                          ;         ERROR 17:       ATTEMPTING TO READ SILO WHEN EMPTY - CS1 INCORRECT
1434  001460  065632                    EM34
1435  001462  066574                    EM1000
1436  001464  061502                    DT016
1437  001466  061756                    DF016
1438                          ;         ERROR 20:       ATTEMPTING TO CLEAR DATA LATE - CS1 INCORRECT
1439  001470  065675                    EM35
1440  001472  066574                    EM1000
1441  001474  061502                    DT016
1442  001476  061756                    DF016
1443                          ;         ERROR 21:       ATTEMPTING TO CLEAR DATA LATE - CS2 INCORRECT
1444  001500  065675                    EM35
1445  001502  066704                    EM1004
1446  001504  061502                    DT016
1447  001506  061756                    DF016
1448                          ;         ERROR 22:       ATTEMPTING TO READ SILO CONTAINING ONE WORD
1449                          ;                         CS1 INCORRECT
1450  001510  065733                    EM36
1451  001512  066574                    EM1000
1452  001514  061502                    DT016
1453  001516  061756                    DF016
1454                          ;         ERROR 23:       ATTEMPTING TO READ SILO CONTAINING ONE WORD
1455                          ;                         CS2 INCORRECT
1456  001520  065733                    EM36
1457  001522  066704                    EM1004
1458  001524  061502                    DT016
1459  001526  061756                    DF016
```

```
1460                                    ;       ERROR 24:       ATTEMPTING TO LOAD SILO - CS1 INCORRECT
1461    001530  066007                            EM37
1462    001532  066574                            EM1000
1463    001534  061516                            DT024
1464    001536  062002                            DF024
1465                                    ;       ERROR 25:       ATTEMPTING TO LOAD SILO - CS2 INCORRECT
1466    001540  066007                            EM37
1467    001542  066704                            EM1004
1468    001544  061516                            DT024
1469    001546  062002                            DF024
1470                                    ;       ERROR 26:       ATTEMPTING TO READ SILO - CS1 INCORRECT
1471    001550  066037                            EM38
1472    001552  066574                            EM1000
1473    001554  061534                            DT026
1474
1475    001556  062026                            DF026
1476                                    ;       ERROR 27:       ATTEMPTING TO READ SILO - CS2 INCORRECT
1477    001560  066037                            EM38
1478    001562  066704                            EM1004
1479    001564  061534                            DT026
1480    001566  062026                            DF026
1481                                    ;       ERROR 30:       ATTEMPTING TO READ SILO - DATA INCORRECT
1482    001570  066037                            EM38
1483    001572  067044                            EM1008
1484    001574  061534                            DT026
1485    001576  062026                            DF026
1486                                    ;       ERROR 31:       ATTEMPTING TO LOAD FULL SILO - CS2 INCORRECT
1487    001600  066067                            EM39
1488    001602  066704                            EM1004
1489    001604  061502                            DT016
1490    001606  061756                            DF016
1491                                    ;       ERROR 32:       ATTEMPTING TO LOAD FULL SILO - CS1 INCORRECT
1492    001610  065314                            EM29
1493    001612  066574                            EM1000
1494    001614  061502                            DT016
1495    001616  061756                            DF016
1496                                    ;       ERROR 33:       DATA LATE DID NOT CAUSE EXPECTED INTERRUPT
1497    001620  066137                            EM40
1498    001622  000000                            0
1499    001624  061460                            DT005
1500    001626  061676                            DF005
1501                                    ;       ERROR 34:       UNEXPECTED INTERRUPT DUE TO UNCLEARED CONTROLLER ERROR
1502    001630  066205                            EM41
1503    001632  000000                            0
1504    001634  061460                            DT005
1505    001636  061676                            DF005
1506                                    ;       ERROR 35:       CONTROLLER CLEAR DID NOT CLEAR PENDING INTERRUPT DUE
1507                                    ;                       TO CONTROLLER ERROR
1508    001640  066267                            EM42
1509    001642  000000                            0
1510    001644  061460                            DT005
1511    001646  061676                            DF005
1512                                    ;       ERROR 36:       CONTROLLER ERROR CAUSED INTERRUPT WITH
1513                                    ;                       INTERRUPT ENABLE RESET
1514    001650  066374                            EM43
1515    001652  000000                            0
```

E03


```
1516  001654  061460                    DT005
1517  001656  061676                    DF005
1518                              ;       ERROR 37:       INTERRUPT DID NOT OCCUR WHEN INTERRUPT ENABLE
1519                              ;                       SET WITH INTERRUPT PENDING DUE TO DATA LATE
1520  001660  066460                    EM44
1521  001662  062251                    DH000A
1522  001664  061464                    DT006
1523  001666  061712                    DF006
1524                              ;       ERROR 40:       UNEXPECTED MEMORY PARITY ENABLE TRAP
1525  001670  063204                    EM000
1526  001672  062302                    DH000C
1527  001674  061412                    DT000
1528  001676  061556                    DF000
```

```
1529                                    .SBTTL  TEMPORARY STORAGE FOR RK611 CONTROLLER REGISTER
1530
1531   001700  000000                   T.CS1:  .WORD   0               ;CONTROL AND STATUS REGISTER 1
1532   001702  000000                   T.WC:   .WORD   0               ;WORD COUNT REGISTER
1533   001704  000000                   T.BA:   .WORD   0               ;BUS ADDRESS REGISTER
1534   001706  000000                   T.DA:   .WORD   0               ;DESIRED TRACK SECTOR REGISTER
1535   001710  000000                   T.CS2:  .WORD   0               ;CONTROL AND STATUS REGISTER 2
1536   001712  000000                   T.DS:   .WORD   0               ;DRIVE STATUS REGISTER
1537   001714  000000                   T.ER:   .WORD   0               ;ERROR REGISTER
1538   001716  000000                   T.ASOF: .WORD   0               ;ATTENTION SUMMARY AND OFFSET REGISTER
1539   001720  000000                   T.DCYL: .WORD   0               ;DESIRED CYLINDER REGISTER
1540   001722  000000                   T.DB:   .WORD   0               ;DATA BUFFER
1541   001724  000000                   T.MR1:  .WORD   0               ;MAINTENANCE REGISTER 1
1542   001726  000000                   T.MR2:  .WORD   0               ;MAINTENANCE REGISTER 2
1543   001730  000000                   T.MR3:  .WORD   0               ;MAINTENANCE REGISTER 3
1544   001732  000000                   T.ECPS: .WORD   0               ;ECC POSITION INFORMATION
1545   001734  000000                   T.ECPT: .WORD   0               ;ECC PATTERN INFORMATION
1546   001736  000000                   T.SPAR: .WORD   0               ;SPARE REGISTER
1547
1548                                    .SBTTL  EXPECTED RK611 CONTROLLER REGISTERS
1549
1550   001740  000000                   E.CS1:  .WORD   0               ;CONTROL AND STATUS REGISTER 1
1551   001742  000000                   E.WC:   .WORD   0               ;WORD COUNT REGISTER
1552   001744  000000                   E.BA:   .WORD   0               ;BUS ADDRESS REGISTER
1553   001746  000000                   E.DA:   .WORD   0               ;DESIRED TRACK SECTOR REGISTER
1554   001750  000000                   E.CS2:  .WORD   0               ;CONTROL AND STATUS REGISTER 2
1555   001752  000000                   E.DS:   .WORD   0               ;DRIVE STATUS REGISTER
1556   001754  000000                   E.ER:   .WORD   0               ;ERROR REGISTER
1557   001756  000000                   E.ASOF: .WORD   0               ;ATTENTION SUMMARY AND OFFSET REGISTER
1558   001760  000000                   E.DCYL: .WORD   0               ;DESIRED CYLINDER REGISTER
1559   001762  000000                   E.DB:   .WORD   0               ;DATA BUFFER
1560   001764  000000                   E.MR1:  .WORD   0               ;MAINTENANCE REGISTER 1
1561   001766  000000                   E.MR2:  .WORD   0               ;MAINTENANCE REGISTER 2
1562   001770  000000                   E.MR3:  .WORD   0               ;MAINTENANCE REGISTER 3
1563   001772  000000                   E.ECPS: .WORD   0               ;ECC POSITION INFORMATION
1564   001774  000000                   E.ECPT: .WORD   0               ;ECC PATTERN INFORMATION
1565   001776  000000                   E.SPAR: .WORD   0               ;SPARE REGISTER
1566
1567                                    .SBTTL  PROGRAM DEFINED VARIABLES
1568
1569   002000  000210                   RKVEC:  .WORD   210             ;RK611 VECTOR ADDRESS
1570   002002  000240                   RKPRI:  .WORD   PR5             ;RK611 PRIORITY
1571   002004  000000                   SRTFLG: .WORD   0               ;START FLAG
1572                                                                    ;   0 = 200
1573                                                                    ;   1 = 214
1574                                                                    ;  -1 = 204
1575   002006  000000                   ERRCNT: .WORD   0               ;ERROR COUNT FOR SWITCH 12 ABORT
1576   002010  000000                   CONFIG: .WORD   0               ;DATA WRITTEN IN REGISTER
1577   002012  000000                   CONFG1: .WORD   0               ;DATA GENERATION WORD
1578   002014  000000                   PREREG: .WORD   0               ;PREVIOUS REGISTER CONTENTS
1579   002016  000000                   SAVFLG: .WORD   0               ;TRAP CATCHER SAVED
1580   002020  000000                   PRIOR:  .WORD   0               ;PROCESSOR PRIORITY
1581   002022  000000                   SILCNT: .WORD   0               ;NUMBER OF WORDS READ OR WRITTEN IN SILO
1582   002024  000000                   TRAPPC: .WORD   0               ;TRAP PC FOR UNEXPECTED MAIN MEMORY CHECK
1583   002026  000000                   SAVSWR: .WORD   0               ;RESTORE SWITCH REGISTER
```

```
                                        .SBTTL  PROGRAM SETUP
                                
002030  012737  000001  002004  PARM:   MOV     #1,SRTFLG       ;LOAD START FLAG FOR PARMETER START
002036  000406                          BR      START1
                                
002040  012737  177777  002004  RESTRT: MOV     #-1,SRTFLG      ;LOAD START FLAG FOR RESTART
002046  000402                          BR      START1
                                
002050  005037  002004          START:  CLR     SRTFLG          ;CLEAR START FLAG
002054  000005                  START1: RESET                   ;RESET THE WHOLE SYSTEM
002056  012706  001100                  MOV     #STACK,SP       ;INITIALIZE STACK POINTER
002062  012746  000340                  MOV     #PR7,-(SP)      ;LOAD STACK TO LOCK OUT ALL INTERRUPTS
002066  012746  002074                  MOV     #1$,-(SP)       ;LOAD START OF PROGRAM
002072  000002                          RTI                     ;LOAD PSW
                                
002074                          1$:
                                        .SBTTL  INITIALIZE THE COMMON TAGS
                                
                                ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
002074  012706  001100                  MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
002100  005026                  CLR     (R6)+                   ;;CLEAR MEMORY LOCATION
002102  022706  001140                  CMP     #$WR,R6 ;;DONE?
002106  001374                  BNE     .-6                     ;;LOOP BACK IF NO
002110  012706  001100                  MOV     #STACK,SP       ;;SETUP THE STACK POINTER
                                ;;INITIALIZE A FEW VECTORS
002114  012737  055416  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
002122  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
002130  012737  056416  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
002136  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
002144  012737  061322  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
002152  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
002160  012737  061172  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
002166  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
002174  013737  055110  055102          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
002202  005037  001200                  CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
002206  005037  001202                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
002212  112737  000001  001115          MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
002220  012737  002220  001106          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
002226  012737  002226  001110          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
002234  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
002240  012737  002274  000004          MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
002246  012737  177570  001140          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
002254  012737  177570  001142          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
002262  022777  177777  176650          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
002270  001012                  BNE     66$                     ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
                                                                ;;AND  THE HARDWARE SWR IS NOT = -1
002272  000403                  BR      65$                     ;;BRANCH IF NO TIMEOUT
002274  012716  002302  64$:    MOV     #65$,(SP)               ;;SET UP FOR TRAP RETURN
002300  000002                  RTI
002302  012737  000176  001140  65$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
002310  012737  000174  001142          MOV     #DISPREG,DISPLAY
002316  012637  000004  66$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR
                                
002322  005037  001222                  CLR     $PASS           ;;CLEAR PASS COUNT
002326  132737  000200  001235          BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
```

```
1640  002334  001403                        BEQ     67$                     ;;YES,USE NON-APT SWITCH
1641  002336  012737  001236  001140        MOV     #$SWREG,SWR             ;;NO,USE APT SWITCH REGISTER
1642  002344                        67$:
1643  002344  005037  002006                CLR     ERRCNT                  ;CLEAR ERROR COUNT
1644                                .SBTTL  TYPE PROGRAM NAME
1645                                ;;TYPE THE NAME OF THE PROGRAM IF FIRST PASS
1646  002350  005227  177777                INC     #-1                     ;;FIRST TIME?
1647  002354  001055                        BNE     68$                     ;;BRANCH IF NO
1648  002356  022737  055244  000042        CMP     #$ENDAD,@#42            ;;ACT-11?
1649  002364  001451                        BEQ     68$                     ;;BRANCH IF YES
1650  002366  104401  002434                TYPE    ,69$                    ;;TYPE ASCIZ STRING
1651                                .SBTTL  GET VALUE FOR SOFTWARE SWITCH REGISTER
1652  002372  005737  000042                TST     @#42                    ;;ARE WE RUNNING UNDER XXDP/ACT?
1653  002376  001012                        BNE     70$                     ;;BRANCH IF YES
1654  002400  123727  001234  000001        CMPB    $ENV,#1                 ;;ARE WE RUNNING UNDER APT?
1655  002406  001406                        BEQ     70$                     ;;BRANCH IF YES
1656  002410  023727  001140  000176        CMP     SWR,#SWREG              ;;SOFTWARE SWITCH REG SELECTED?
1657  002416  001005                        BNE     71$                     ;;BRANCH IF NO
1658  002420  104406                        GTSWR                           ;;GET SOFT-SWR SETTINGS
1659  002422  000403                        BR      71$
1660  002424  112737  000001  001134  70$:  MOVB    #1,$AUTOB               ;;SET AUTO-MODE INDICATOR
1661  002432                        71$:
1662  002432  000426                        BR      68$                     ;;GET OVER THE ASCIZ
1663                                ;;69$:  .ASCIZ  <CRLF>/RK611 DISKLESS DIAGNOSTIC: PART 1 CZR6AC0/<CRLF>
1664  002510                        68$:
1665  002510  022737  000001  002004        CMP     #1,SRTFLG               ;CHECK IF PARAMETER START
1666  002516  001122                        BNE     15$                     ;NO, CONTINUE SETUP
1667  002520  104401  062052        5$:     TYPE    ,OPR001                 ;TYPE "RK611 BUS ADDRESS (   ) ="
1668  002524  013746  001270                MOV     $BASE,-(SP)             ;;SAVE $BASE FOR TYPEOUT
1669  002530  104402                        TYPOC                           ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
1670  002532  104401  062101                TYPE    ,OPR002
1671  002536  104412                        RDOCT                           ;GET VALUE
1672  002540  012637  001160                MOV     (SP)+,$TMP0
1673  002544  001407                        BEQ     7$                      ;CHECK IF <CR>
1674  002546  022737  160000  001160        CMP     #160000,$TMP0           ;CHECK IF IN I/O PAGE
1675  002554  101361                        BHI     5$
1676  002556  013737  001160  001270        MOV     $TMP0,$BASE             ;LOAD NEW BUS ADDRESS
1677  002564  104401  062107        7$:     TYPE    ,OPR003                 ;TYPE "RK611 VECTOR ADDRESS (   ) ="
1678  002570  013746  001264                MOV     $VECT1,-(SP)            ;TYPE OUT CURRENT VECTOR ADDRESS
1679  002574  042716  160000                BIC     #160000,(SP)
1680  002600  104402                        TYPOC
1681  002602  104401  062101                TYPE    ,OPR002
1682  002606  104412                        RDOCT                           ;GET VALUE
1683  002610  012637  001160                MOV     (SP)+,$TMP0
1684  002614  001412                        BEQ     10$                     ;CHECK IF <CR>
1685  002616  022737  001000  001160        CMP     #1000,$TMP0             ;CHECK IF LEGAL
1686  002624  101757                        BLOS    7$
1687  002626  042737  017777  001264        BIC     #17777,$VECT1           ;LOAD NEW VECTOR ADDRESS
1688  002634  053737  001160  001264        BIS     $TMP0,$VECT1
1689  002642  104401  062137        10$:    TYPE    ,OPR004                 ;TYPE "RK611 PRIORITY (   ) ="
1690  002646  005046                        CLR     -(SP)                   ;MAKE ROOM ON THE STACK
1691  002650  113716  001265                MOVB    $VECT1+1,(SP)
1692  002654  006216                        ASR     (SP)                    ;SHIFT 5 BITS RIGHT
1693  002656  006216                        ASR     (SP)
1694  002660  006216                        ASR     (SP)
1695  002662  006216                        ASR     (SP)
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1696  002664  006216                          ASR     (SP)
1697  002666  104402                          TYPOC
1698  002670  104401  062101                  TYPE    ,OPR002
1699  002674  104412                          RDOCT                   ;GET VALUE
1700  002676  012637  001160                  MOV     (SP)+,$TMPO
1701  002702  001430                          BEQ     15$             ;CHECK FOR DEFAULT
1702  002704  022737  000007  001160          CMP     #7,$TMPO        ;CHECK IF LEGAL
1703  002712  103753                          BLO     10$
1704  002714  022737  000004  001160          CMP     #4,$TMPO
1705  002722  101347                          BHI     10$
1706  002724  006337  001160                  ASL     $TMPO           ;SHIFT 5 BITS LEFT
1707  002730  006337  001160                  ASL     $TMPO
1708  002734  006337  001160                  ASL     $TMPO
1709  002740  006337  001160                  ASL     $TMPO
1710  002744  006337  001160                  ASL     $TMPO
1711  002750  042737  160000  001264          BIC     #160000,$VECT1  ;STORE NEW PRIORITY
1712  002756  153737  001160  001265          BISB    $TMPO,$VECT1+1
1713  002764  013737  001264  002000  15$:    MOV     $VECT1,RKVEC    ;STORE RK611 VECTOR
1714  002772  042737  160000  002000          BIC     #160000,RKVEC   ;CLEAR PRIORITY BITS
1715  003000  113737  001265  002002          MOVB    $VECT1+1,RKPRI  ;STORE PRIORITY
1716  003006  005737  002016                  TST     SAVFLG          ;CHECK IF TRAP CATCHER IS TO BE RESTORED
1717  003012  001412                          BEQ     NEWPAS          ;NO, GO TO FIRST TEST
1718  003014  012701  067754                  MOV     #SAVVEC,R1      ;RESTORE TRAP CATCHER
1719  003020  005000                          CLR     R0
1720  003022  012703  000400                  MOV     #400,R3         ;STORE COUNT
1721  003026  012120                  16$:    MOV     (R1)+,(R0)+
1722  003030  005303                          DEC     R3
1723  003032  001375                          BNE     16$
1724  003034  005037  002016                  CLR     SAVFLG          ;INDICATE THAT TRAP CATCHER HAS BEEN RESTORED
1725
1726  003040  004737  055264          NEWPAS: JSR     PC,CHKPAR       ;CHECK FOR MEMORY CHECK ENABLE
1727  003044  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE ADDR
1728  003050  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
1729  003054  012746  003062                  MOV     #TST1,-(SP)
1730  003060  000002                          RTI
```

```
                                        ;;*****************************************************************
                                        ;*TEST 1         ADDRESS ALL RK611 REGISTERS
                                        ;*
                                        ;*       THIS TEST WILL ACCESS ALL RK611 REGISTERS AND CHECK TO
                                        ;*       MAKE SURE THAT NON-EXISTENT MEMORY DOES NOT OCCUR.
                                        ;*       A NON-EXISTENT MEMORY INDICATES EITHER THAT THE RK611
                                        ;*       REGISTER BASE ADDRESS IS INCORRECT OR THAT THE
                                        ;*       RK611 DOES NOT RESPOND TO UNIBUS DIALOGUE.
                                        ;*
                                        ;;*****************************************************************
003062  000004                    TST1:   SCOPE
003064  012737  000764  001200            MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
003072  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE
003076  012737  003130  000004            MOV     #10$,ERRVEC     ;LOAD VECTOR FOR NEM
003104  012737  000340  000006            MOV     #PR7,ERRVEC+2
003112  012703  000020                    MOV     #16.,R3         ;LOAD NUMBER OF REGISTER
003116  005712                    5$:     TST     (R2)            ;ADDRESS RK611 REGISTER
003120  005722                            TST     (R2)+           ;INCREMENT TO NEXT REGISTER
003122  005303                            DEC     R3              ;CHECK IF ALL REGISTERS ADDRESS
003124  001374                            BNE     5$              ;NO,CONTINUE
003126  000405                            BR      15$             ;RESTORE TRAP CATCHER

003130  062706  000004            10$:    ADD     #4,SP           ;ADJUST STACK
003134  010237  001122                    MOV     R2,$BDADR       ;LOAD ADDRESS PRINT OUT
003140  104001                            ERROR   1
003142  012737  000006  000004    15$:    MOV     #ERRVEC+2,ERRVEC ;RESTORE TRAP CATCHER
003150  005037  000006                    CLR     ERRVEC+2


                                        .SBTTL  **RESET, CONTROLLER CLEAR, AND TRI-STATE TESTS

                                        ;;*****************************************************************
                                        ;*TEST 2         RESET RK611 AND VERIFY REGISTERS
                                        ;*
                                        ;*       RESET THE RK611 CONTROLLER AND READ ALL REGISTER OF THE
                                        ;*       RK611 REGISTERS EXCEPT THE DATA BUFFER AND VERIFY THAT
                                        ;*       THEY ARE CORRECT.  REEXAMINE COMMAND AND STATUS REGISTER 1
                                        ;*       TO MAKE SURE CONTROLLER ERROR DID NOT SET.  REEXAMINE
                                        ;*       COMMAND AND STATUS REGISTER 2 TO MAKE SURE DATA LATE
                                        ;*       DID NOT SET.
                                        ;*
                                        ;*       THE SUCCESSFUL EXECUTION OF THIS TEST VERIFIES THAT NO
                                        ;*       BIT OF THE TRI-STATE BUS IS STUCK TO ONE.
                                        ;*
                                        ;*****************************************************************
003154  000004                    TST2:   SCOPE
003156  012737  000012  001200            MOV     #10.,$TIMES     ;;DO 10. ITERATIONS
003164  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE REGISTER
003170  012737  063326  001310            MOV     #EM2,EM2N       ;LOAD ERROR MESSAGE FOR PRINT OUT
003176  000005                            RESET                   ;CLEAR RK611 WITH  UNIBUS INIT
003200  004737  055264                    JSR     PC,CHKPAR       ;CHECK FOR MEMORY CHECK ENABLE
003204  016237  000000  001126            MOV     RKCS1(R2),$BDDAT ;SAVE COMMAND AND STATUS REG.7
003212  022737  000200  001126            CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
003220  001407                            BEQ     1$              ;YES,CHECK OTHER REGISTERS
003222  012737  000200  001124            MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
003230  012737  066574  001312            MOV     #EM1000,EM2N+2  ;LOAD ERROR MESSAGE
```

```
1787  003236  104002                    ERROR   2
1788  003240  016237  000004  001126  1$:       MOV     RKBA(R2),$BDDAT ;SAVE BUS ADD REG
1789  003246  001406                            BEQ     2$              ;CHECK IF ZERO
1790  003250  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1791  003254  012737  066637  001312            MOV     #EM1002,EM2N+2  ;LOAD ERROR MESSAGE
1792  003262  104002                    ERROR   2
1793  003264  016237  000006  001126  2$:       MOV     RKDA(R2),$BDDAT ;SAVE DISK ADDRESS ERROR
1794  003272  001406                            BEQ     3$              ;CHECK IF ZERO
1795  003274  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1796  003300  012737  066661  001312            MOV     #EM1003,EM2N+2  ;LOAD ERROR MESSAGE
1797  003306  104002                    ERROR   2
1798  003310  016237  000016  001126  3$:       MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION/OFFSET REG.
1799  003316  001406                            BEQ     4$              ;CHECK IF ZERO
1800  003320  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1801  003324  012737  067001  001312            MOV     #EM1007,EM2N+2  ;LOAD ERROR MESSAGE
1802  003332  104002                    ERROR   2
1803  003334  016237  000010  001126  4$:       MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2
1804  003342  022737  000100  001126            CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
1805  003350  001407                            BEQ     5$              ;YES,CONTINUE
1806  003352  012737  000100  001124            MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
1807  003360  012737  066704  001312            MOV     #EM1004,EM2N+2  ;LOAD ERROR MESSAGE
1808  003366  104002                    ERROR   2
1809  003370  016237  000012  001126  5$:       MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
1810  003376  001406                            BEQ     6$              ;CHECK IF ZERO
1811  003400  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1812  003404  012737  066722  001312            MOV     #EM1005,EM2N+2  ;LOAD ERROR MESSAGE
1813  003412  104002                    ERROR   2
1814  003414  016237  000014  001126  6$:       MOV     RKER(2),$BDDAT  ;STORE ERROR STATUS REG
1815  003422  001406                            BEQ     7$              ;CHECK IF ZERO
1816  003424  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1817  003430  012737  066755  001312            MOV     #EM1006,EM2N+2  ;LOAD ERROR MESSAGE
1818  003436  104002                    ERROR   2
1819  003440  016237  000020  001126  7$:       MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
1820  003446  001406                            BEQ     9$              ;CHECK IF EQUAL ZERO
1821  003450  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1822  003454  012737  067272  001312            MOV     #EM1016,EM2N+2  ;LOAD ERROR MESSAGE
1823  003462  104002                    ERROR   2
1824  003464  016237  000026  001126  9$:       MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
1825  003472  012737  002000  001124            MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
1826  003500  032737  020000  001126            BIT     #ECCW,$BDDAT
1827  003506  001403                            BEQ     10$
1828  003510  052737  020000  001124            BIS     #ECCW,$GDDAT
1829  003516  023737  001124  001126  10$:      CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
1830  003524  001407                            BEQ     11$             ;YES,CONTINUE TEST
1831  003526  012737  022000  001124            MOV     #ECCW!MEWD,$GDDAT ;LOAD EXPECTED CONTENTS
1832  003534  012737  067072  001312            MOV     #EM1009,EM2N+2  ;LOAD ERROR MESSAGE
1833  003542  104002                    ERROR   2
1834  003544  016237  000032  001126  11$:      MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
1835  003552  001406                            BEQ     12$             ;CHECK IF ZERO
1836  003554  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED RESULTS
1837  003560  012737  067142  001312            MOV     #EM1013,EM2N+2  ;LOAD ERROR MESSAGE
1838  003566  104002                    ERROR   2
1839  003570  016237  000030  001126  12$:      MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
1840  003576  022737  004066  001126            CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
1841  003604  001407                            BEQ     13$             ;YES,CONTINUE
1842  003606  012737  004066  001124            MOV     #4066,$GDDAT    ;LOAD EXPECTED RESULTS
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```
1843  003614  012737  067120  001312          MOV     #EM1012,EM2N+2  ;LOAD ERROR MESSAGE
1844  003622  104002                          ERROR   2
1845  003624  016237  000000  001126  13$:    MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG 1
1846  003632  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
1847  003640  001407                          BEQ     14$             ;YES, CONTINUE
1848  003642  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
1849  003650  012737  067164  001312          MOV     #EM1014,EM2N+2  ;LOAD ERROR MESSAGE
1850  003656  104002                          ERROR   2
1851  003660  016237  000010  001126  14$:    MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2.
1852  003666  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
1853  003674  001407                          BEQ     TST3            ;;GO ON TO NEXT TEXT
1854  003676  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
1855  003704  012737  067227  001312          MOV     #EM1015,EM2N+2  ;LOAD ERROR MESSAGE
1856  003712  104002                          ERROR   2
1857
1858                                  ;;*****************************************************************
1859                                  ;*TEST 3         CONTROLLER CLEAR AND VERIFY REGISTERS
1860                                  ;*
1861                                  ;*       INITIALIZE THE RK611 CONTROLLER WITH A CONTROLLER
1862                                  ;*       CLEAR AND READ ALL REGISTER OF THE RK611 REGISTERS
1863                                  ;*       EXCEPT THE DATA BUFFER AND VERIFY THAT THEY ARE
1864                                  ;*       CORRECT.  REEXAMINE COMMAND AND STATUS REGISTER 1
1865                                  ;*       TO MAKE SURE CONTROLLER ERROR DID NOT SET.  REEXAMINE
1866                                  ;*       COMMAND AND STATUS REGISTER 2 TO MAKE SURE DATA LATE
1867                                  ;*       DID NOT SET.
1868                                  ;*
1869                                  ;;*****************************************************************
1870  003714  000004                  TST3:   SCOPE
1871  003716  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
1872  003724  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE REGISTER
1873  003730  012737  063403  001310          MOV     #EM3,EM2N       ;LOAD ERROR MESSAGE FOR PRINT OUT
1874  003736  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
1875  003744  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;SAVE COMMAND AND STATUS REG.7
1876  003752  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
1877  003760  001407                          BEQ     1$              ;YES CHECK OTHER REGISTERS
1878  003762  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
1879  003770  012737  066574  001312          MOV     #EM1000,EM2N+2  ;LOAD ERROR MESSAGE
1880  003776  104002                          ERROR   2
1881  004000  016237  000004  001126  1$:     MOV     RKBA(R2),$BDDAT ;SAVE BUS ADD REG
1882  004006  001406                          BEQ     2$              ;CHECK IF ZERO
1883  004010  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1884  004014  012737  066637  001312          MOV     #EM1002,EM2N+2  ;LOAD ERROR MESSAGE
1885  004022  104002                          ERROR   2
1886  004024  016237  000006  001126  2$:     MOV     RKDA(R2),$BDDAT ;SAVE DISK ADDRESS ERROR
1887  004032  001406                          BEQ     3$              ;CHECK IF ZERO
1888  004034  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1889  004040  012737  066661  001312          MOV     #EM1003,EM2N+2  ;LOAD ERROR MESSAGE
1890  004046  104002                          ERROR   2
1891  004050  016237  000016  001126  3$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION/OFFSET REG.
1892  004056  001406                          BEQ     4$              ;CHECK IF ZERO
1893  004060  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1894  004064  012737  067001  001312          MOV     #EM1007,EM2N+2  ;LOAD ERROR MESSAGE
1895  004072  104002                          ERROR   2
1896  004074  016237  000010  001126  4$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2
1897  004102  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
1898  004110  001407                          BEQ     5$              ;YES,CONTINUE
```

```
1899  004112  012737  000100  001124        MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
1900  004120  012737  066704  001312        MOV     #EM1004,EM2N+2  ;LOAD ERROR MESSAGE
1901  004126  104002                        ERROR   2
1902  004130  016237  000012  001126  5$:   MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
1903  004136  001406                        BEQ     6$              ;CHECK IF ZERO
1904  004140  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1905  004144  012737  066722  001312        MOV     #EM1005,EM2N+2  ;LOAD ERROR MESSAGE
1906  004152  104002                        ERROR   2
1907  004154  016237  000014  001126  6$:   MOV     RKER(2),$BDDAT  ;STORE ERROR STATUS REG
1908  004162  001406                        BEQ     7$              ;CHECK IF ZERO
1909  004164  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1910  004170  012737  066755  001312        MOV     #EM1006,EM2N+2  ;LOAD ERROR MESSAGE
1911  004176  104002                        ERROR   2
1912  004200  016237  000020  001126  7$:   MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
1913  004206  001406                        BEQ     9$              ;CHECK IF EQUAL ZERO
1914  004210  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
1915  004214  012737  067272  001312        MOV     #EM1016,EM2N+2  ;LOAD ERROR MESSAGE
1916  004222  104002                        ERROR   2
1917  004224  016237  000026  001126  9$:   MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
1918  004232  012737  002000  001124        MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
1919  004240  032737  020000  001126        BIT     #ECCW,$BDDAT
1920  004246  001403                        BEQ     10$
1921  004250  052737  020000  001124        BIS     #ECCW,$GDDAT
1922  004256  023737  001124  001126  10$:  CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
1923  004264  001407                        BEQ     11$             ;YES,CONTINUE TEST
1924  004266  012737  022000  001124        MOV     #ECCW!MEWD,$GDDAT ;LOAD EXPECTED CONTENTS
1925  004274  012737  067072  001312        MOV     #EM1009,EM2N+2  ;LOAD ERROR MESSAGE
1926  004302  104002                        ERROR   2
1927  004304  016237  000032  001126  11$:  MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
1928  004312  001406                        BEQ     12$             ;CHECK IF ZERO
1929  004314  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED RESULTS
1930  004320  012737  067142  001312        MOV     #EM1013,EM2N+2  ;LOAD ERROR MESSAGE
1931  004326  104002                        ERROR   2
1932  004330  016237  000030  001126  12$:  MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
1933  004336  022737  004066  001126        CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
1934  004344  001407                        BEQ     13$             ;YES,CONTINUE
1935  004346  012737  004066  001124        MOV     #4066,$GDDAT    ;LOAD EXPECTED RESULTS
1936  004354  012737  067120  001312        MOV     #EM1012,EM2N+2  ;LOAD ERROR MESSAGE
1937  004362  104002                        ERROR   2
1938  004364  016237  000000  001126  13$:  MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG 1
1939  004372  022737  000200  001126        CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
1940  004400  001407                        BEQ     14$             ;YES, CONTINUE
1941  004402  012737  000200  001124        MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
1942  004410  012737  067164  001312        MOV     #EM1014,EM2N+2  ;LOAD ERROR MESSAGE
1943  004416  104002                        ERROR   2
1944  004420  016237  000010  001126  14$:  MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2.
1945  004426  022737  000100  001126        CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
1946  004434  001407                        BEQ     TST4            ;;GO ON TO NEXT TEXT
1947  004436  012737  000100  001124        MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
1948  004444  012737  067227  001312        MOV     #EM1015,EM2N+2  ;LOAD ERROR MESSAGE
1949  004452  104002                        ERROR   2
1950
1951                                  ;;*****************************************************************
1952                                  ;*TEST 4        WRITE BUS ADDRESS WITH 177777 (PART 1)
1953                                  ;*
1954                                  ;*      THIS TEST WILL WRITE THE BUS ADDRESS REGISTER TO 177777
```

```
                                        ;*      AND CHECK IF EQUAL TO 177776 AND THAT NO REGISTER INTERACTION
                                        ;*      TAKES PLACE. A RESET IS DONE AT THE END OF THE TEST TO
                                        ;*      MAKE SURE THE BUS ADDRESS CLEARS AND ALL RK611 REGISTERS
                                        ;*      ARE IN THEIR INITIALIZED STATE.
                                        ;*
                                        ;**************************************************************************
004454  000004                  TST4:   SCOPE
004456  012737  000012  001200          MOV     #10.,$TIMES     ;;DO 10. ITERATIONS
004464  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
004470  012737  177777  002010          MOV     #177777,CONFIG  ;LOAD VALUE WRITTEN FOR PRINT OUT
004476  012737  063465  001320          MOV     #EM4,EM3N       ;LOAD ERROR MESSAGE
004504  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;INITIALIZE RK611 CONTROLLER
004512  012762  177777  000004          MOV     #177777,RKBA(R2);WRITE BUS ADDRESS WITH 177777
004520  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS REG
004526  022737  177776  001126          CMP     #177776,$BDDAT  ;CHECK IF BUS ADDRESS CORRECT
004534  001407                        BEQ     1$              ;YES, CHECK IF ANY REGISTER MODIFIED
004536  012737  177776  001124          MOV     #177776,$GDDAT  ;LOAD EXPECTED RESULTS
004544  012737  066637  001322          MOV     #EM1002,EM3N+2  ;LOAD ERROR MESSAGE
004552  104003                        ERROR   3
004554  016237  000000  001126  1$:     MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
004562  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
004570  001407                        BEQ     2$              ;YES, CHECK OTHER REGISTERS
004572  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
004600  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
004606  104003                        ERROR   3
004610  016237  000006  001126  2$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG.
004616  001406                        BEQ     3$              ;CHECK IF ZERO
004620  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
004624  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
004632  104003                        ERROR   3
004634  016237  000016  001126  3$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
004642  001406                        BEQ     4$              ;CHECK IF ZERO
004644  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTSQ
004650  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
004656  104003                        ERROR   3
004660  016237  000010  001126  4$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2
004666  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
004674  001407                        BEQ     5$              ;YES,CONTINUE
004676  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
004704  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
004712  104003                        ERROR   3
004714  016237  000012  001126  5$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
004722  001406                        BEQ     6$              ;CHECK IF ZERO
004724  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
004730  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
004736  104003                        ERROR   3
004740  016237  000014  001126  6$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG.
004746  001406                        BEQ     7$              ;CHECK IF ZERO
004750  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
004754  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
004762  104003                        ERROR   3
004764  016237  000020  001126  7$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD. REG..
004772  001406                        BEQ     9$              ;CHECK IF EQUAL ZERO
004774  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
005000  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
005006  104003                        ERROR   3
```

```
2011  005010  016237  000026  001126  9$:     MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG. 1
2012  005016  012737  002000  001124          MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
2013  005C24  032737  020000  001126          BIT     #ECCW,$BDDAT
2014  005032  001403                          BEQ     10$
2015  005034  052737  020000  001124          BIS     #ECCW,$GDDAT
2016  005042  023737  001124  001126  10$:    CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
2017  005050  001404                          BEQ     11$              ;YES,CONTINUE TEST
2018  005052  012737  067651  001322          MOV     #EM1026,EM3N+2   ;LOAD ERROR MESSAGE
2019  005060  104003                          ERROR   3
2020  005062  016237  000032  001126  11$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2021  005070  001406                          BEQ     12$              ;CHECK IF ZERO
2022  005072  005037  001124                  CLR     $GDDAT           ;LOAD EXPECTED RESULTS
2023  005076  012737  067727  001322          MOV     #EM1030,EM3N+2   ;LOAD ERROR MESSAGE
2024  005104  104003                          ERROR   3
2025  005106  016237  000030  001126  12$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REGC
2026  005114  022737  004066  001126          CMP     #4066,$BDDAT     ;CHECK IF ECC POSITION CRRECT
2027  005122  001407                          BEQ     13$              ;YES, CLEAR RK611
2028  005124  012737  004066  001124          MOV     #4066,$GDDAT     ;LOAD EXPECTED RESULTS
2029  005132  012737  067702  001322          MOV     #EM1029,EM3N+2   ;LOAD ERROR MESSAGE
2030  005140  104003                          ERROR   3
2031  005142  012737  177776  002014  13$:    MOV     #177776,PREREG   ;LOAD PREVIOUS CONTENTS
2032  005150  012737  063521  001330          MOV     #EM5,EM4N        ;LOAD ERROR MESSAGE
2033  005156  000005                          RESET                    ;CLEAR RK611 WITH UNIBUS INIT
2034  005160  004737  055264                  JSR     PC,CHKPAR        ;CHECK FOR MEMORY CHECK ENABLE
2035  005164  016237  000004  001126          MOV     RKBA(R2),$BDDAT  ;STORE BUS ADDRESS REG.
2036  005172  001406                          BEQ     TST5             ;;CHECK IF CLEARED
2037  005174  005037  001124                  CLR     $GDDAT           ;LOAD EXPECTED RESULTS
2038  005200  012737  066637  001332          MOV     #EM1002,EM4N+2   ;LOAD ERROR MESSAGE
2039  005206  104004                          ERROR   4
2040
2041                                  ;;*****************************************************************
2042                                  ;*TEST 5         WRITE BUS ADDRESS WITH 177777 (PART 2)
2043                                  ;*
2044                                  ;*      THIS TEST WILL WRITE THE BUS ADDRESS REGISTER TO 177777.
2045                                  ;*      A CONTROLLER CLEAR IS DONE. MAKE SURE THE BUS ADDRESS CLEARS.
2046                                  ;*
2047                                  ;*****************************************************************
2048  005210  000004                  TST5:   SCOPE
2049  005212  012737  000144  001200          MOV     #100.,$TIMES     ;;DO 100. ITERATIONS
2050  005220  013702  001270                  MOV     $BASE,R2         ;LOAD RK611 BASE
2051  005224  012762  100000  000000          MOV     #CCLR,RKCS1(R2)  ;CLEAR KK611 WITH CONTROLLER CLEAR
2052  005232  012762  177777  000004          MOV     #177777,RKBA(R2) ;LOAD BUS ADDRESS WITH ALL ONES
2053  005240  012762  100000  000000          MOV     #CCLR,RKCS1(R2)  ;CLEAR RK611 WITH CONTROLLER CLEAR
2054  005246  016237  000004  001126          MOV     RKBA(R2),$BDDAT  ;STORE BUS ADDRESS
2055  005254  001414                          BEQ     TST6             ;;CHECK IF ZERO
2056  005256  012737  177776  002014          MOV     #177776,PREREG   ;LOAD PREVIOUS CONTENTS
2057  005264  005037  001124                  CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2058  005270  012737  063600  001330          MOV     #EM6,EM4N        ;LOAD ERROR MESSAGE
2059  005276  012737  066637  001332          MOV     #EM1002,EM4N+2
2060  005304  104004                          ERROR   4
2061
2062                                  ;;*****************************************************************
2063                                  ;*TEST 6         WRITE WORD COUNT REG. WITH 177777
2064                                  ;*
2065                                  ;*      THIS TEST WILL WRITE THE WORD COUNT REGISTER
2066                                  ;*      TO 0 AND 177777 AND CHECK IF EQUAL TO 0 AND 177777
```

```
                                        T6      WRITE WORD COUNT REG. WITH 177777
                                        ;*
                                        ;*      RESPECTIVELY AND THAT NO REGISTER INTERACTION TAKES PLACE.
                                        ;*
                                        ;*      ISSUE A CONTROLLER CLEAR AND MADE SURE THAT THE WORD
                                        ;*    - COUNT REGISTER DOES NOT CHANGE.
                                        ;*
                                        ;**************************************************************************
005306  000004                          TST6:   SCOPE
005310  012737  000764  001200                  MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
005316  013702  001270                          MOV     $BASE,R2        ;LOAD RK611 BASE
005322  005037  002010                          CLR     CONFIG          ;CLEAR CONFIGURATION WORD
005326  012737  063663  001320                  MOV     #EM7,EM3N       ;LOAD ERROR MESSAGE
005334  012737  005342  001110                  MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
005342                                  1$:
005342  012762  100000  000000                  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WTIH CONTROLLER CLEAR
005350  013762  002010  000002                  MOV     CONFIG,RKWC(R2) ;WRITE WORD COUNT REG.
005356  016237  000002  001126                  MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG,
005364  023737  002010  001126                  CMP     CONFIG,$BDDAT   ;CHECK IF WORD COUNT CORRECT
005372  001407                                  BEQ     2$              ;YES, CHECK IF ANY REGISTER MODIFIED
005374  013737  002010  001124                  MOV     CONFIG,$GDDAT   ;LOAD EXPECTED RESULTS
005402  012737  066612  001322                  MOV     #EM1001,EM3N+2  ;LOAD ERROR MESSAGE
005410  104003                                  ERROR   3
005412  016237  000000  001126          2$:     MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
005420  022737  000200  001126                  CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
005426  001407                                  BEQ     3$              ;YES, CONTINUE TEST
005430  012737  000200  001124                  MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
005436  012737  067314  001322                  MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
005444  104003                                  ERROR   3
005446  016237  000004  001126          3$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
005454  001406                                  BEQ     4$              ;CHECK IF ZERO
005456  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
005462  012737  067365  001322                  MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
005470  104003                                  ERROR   3
005472  016237  000006  001126          4$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG.
005500  001406                                  BEQ     5$              ;CHECK IF ZERO
005502  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTD CONTENTS
005506  012737  067412  001322                  MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
005514  104003                                  ERROR   3
005516  016237  000016  001126          5$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
005524  001406                                  BEQ     6$              ;CHECK IF ZERO
005526  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
005532  012737  067556  001322                  MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
005540  104003                                  ERROR   3
005542  016237  000010  001126          6$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG 2
005550  022737  000100  001126                  CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
005556  001407                                  BEQ     7$              ;YES,CONTINUE
005560  012737  000100  001124                  MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
005566  012737  067450  001322                  MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
005574  104003                                  ERROR   3
005576  016237  000012  001126          7$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
005604  001406                                  BEQ     8$              ;CHECK IF ZERO
005606  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
005612  012737  067471  001322                  MOV     #EM1022, EM3N+2 ;LOAD ERROR MESSAGE
005620  104003                                  ERROR   3
005622  016237  000014  001126          8$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
```

```
2123  005630  001406                        BEQ     9$                      ;CHECK IF ZERO
2124  005632  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
2125  005636  012737  067527  001322        MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
2126  005644  104003                        ERROR   3
2127  005646  016237  000020  001126  9$:   MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD. REG
2128  005654  001406                        BEQ     11$                     ;CHECK IF EQUAL ZERO
2129  005656  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED RESULTS
2130  005662  012737  067624  001322        MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
2131  005670  104003                        ERROR   3
2132  005672  016237  000026  001126  11$:  MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
2133  005700  012737  002000  001124        MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
2134  005706  032737  020000  001126        BIT     #ECCW,$BDDAT
2135  005714  001403                        BEQ     12$
2136  005716  052737  020000  001124        BIS     #ECCW,$GDDAT
2137  005724  023737  001124  001126  12$:  CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORREGT
2138  005732  001404                        BEQ     13$                             ;YES, CONTINUE TEST
2139  005734  012737  067651  001322        MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
2140  005742  104003                        ERROR   3
2141  005744  016237  000032  001126  13$:  MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2142  005752  001406                        BEQ     14$                     ;CHECK IF ZERO
2143  005754  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED RESULTS
2144  005760  012737  067727  001322        MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
2145  005766  104003                        ERROR   3
2146  005770  016237  000030  001126  14$:  MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2147  005776  022737  004066  001126        CMP     #4066,$BDDAT            ;CHECK IF ECC POSITION CORRECT
2148  006004  001407                        BEQ     15$                     ;YES,CLEAR RK611
2149  006006  012737  004066  001124        MOV     #4066,$GDDAT            ;LOAD EXPECTED RESULTS
2150  006014  012737  067702  001322        MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
2151  006022  104003                        ERROR   3
2152  006024  012762  100000  000000  15$:  MOV     #CCLR,RKCS1(R2)         ;CLEAR RK611
2153  006032  016237  000002  001126        MOV     RKWC(R2),$BDDAT         ;STORE WORD COUNT REG.
2154  006040  023737  002010  001126        CMP     CONFIG,$BDDAT           ;CHECK IF WORD COUNT NOT CHANGED
2155                                                                        ;  BY COTROLLER CLEAR
2156  006046  001412                        BEQ     20$                     ;YES, CONTINUE
2157  006050  013737  002010  001124        MOV     CONFIG,$GDDAT           ;LOAD EXPECTED DATA
2158  006056  012737  063403  001310        MOV     #EM3,EM2N               ;LOAD ERROR MESSAGE
2159  006064  012737  067335  001312        MOV     #EM1018,EM2N+2
2160  006072  104002                        ERROR   2
2161  006074  104415              20$:      SCOP1                           ;TEST IF LOOP ON ERROR
2162  006076  005737  002010                TST     CONFIG                  ;CHECK IF FINISHED
2163  006102  001005                        BNE     TST7                    ;;YES, GO TO NEXT TEST
2164  006104  012737  177777  002010        MOV     #177777,CONFIG                  ;USE 177777 FOR SECOND PASS
2165  006112  000137  005342                JMP     1$
2166
2167                                        ;;*****************************************************************
2168                                        ;*TEST 7         WRITE DISK ADDRESS WITH 177777
2169                                        ;*
2170                                        ;*       THIS TEST WILL WRITE THE DISK ADDRESS REGISTER TO 177777
2171                                        ;*       AND CHECK IF EQUAL TO 003437 AND THAT NO REGISTER INTERACTION
2172                                        ;*       TAKES PLACE. A CONTROLLER CLEAR IS DONE AT THE END OF
2173                                        ;*       THE TEST TO MAKE SURE THE DISK ADDRESS CLEARS.
2174                                        ;*
2175                                        ;*****************************************************************
2176  006116  000004              TST7:     SCOPE
2177  006120  012737  000144  001200        MOV     #100.,$TIMES            ;;DO 100. ITERATIONS
2178  006126  013702  001270                MOV     $BASE,R2                ;LOAD RK611 BASE
```

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2179  006132  012737  177777  002010        MOV     #177777,CONFIG  ;LOAD CONFIGURAION WORD
2180  006140  012737  063722  001320        MOV     #EM8,EM3N       ;LOAD ERROR MESSAGE
2181  006146  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
2182  006154  005062  000002                CLR     RKWC(R2)        ;CLEAR WORD COUNT REG
2183  006160  012762  177777  000006        MOV     #177777,RKDA(R2) ;WRITE DISK ADDRESS WITH
2184                                                                ;  177777
2185  006166  016237  000006  001126        MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG.
2186  006174  022737  003437  001126        CMP     #3437,$BDDAT    ;CHECK IF DISK ADDRESS REG CORRECT
2187  006202  001407                        BEQ     1$              ;YES, CHECK IF AY REGISTER MODIFIED
2188  006204  012737  003437  001124        MOV     #3437,$GDDAT    ;LOAD EXPECTED RESULTS
2189  006212  012737  066661  001322        MOV     #EM1003,EM3N+2  ;LOAD ERROR MESSAGE
2190  006220  104003                        ERROR   3
2191  006222  016237  000000  001126  1$:   MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
2192  006230  022737  000200  001126        CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
2193  006236  001407                        BEQ     2$              ;YES, CONTINUE
2194  006240  012737  000200  001124        MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
2195  006246  012737  067314  001322        MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
2196  006254  104003                        ERROR   3
2197  006256  016237  000004  001126  2$:   MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
2198  006264  001406                        BEQ     3$              ;CHECK IF ZERO
2199  006266  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2200  006272  012737  067365  001322        MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
2201  006300  104003                        ERROR   3
2202  006302  016237  000002  001126  3$:   MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
2203  006310  001406                        BEQ     4$              ;CHECK IF ZERO
2204  006312  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2205  006316  012737  067335  001322        MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
2206  006324  104003                        ERROR   3
2207  006326  016237  000016  001126  4$:   MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2208  006334  001406                        BEQ     5$              ;CHECK IF ZERO
2209  006336  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2210  006342  012737  067556  001322        MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
2211  006350  104003                        ERROR   3
2212  006352  016237  000010  001126  5$:   MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2213  006360  022737  000100  001126        CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
2214  006366  001407                        BEQ     6$              ;YES,CONTINUE
2215  006370  012737  000100  001124        MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
2216  006376  012737  067450  001322        MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
2217  006404  104003                        ERROR   3
2218  006406  016237  000012  001126  6$:   MOV     RKDS(R2),$BDDAT ;STORE DRIVE STAUS REG.
2219  006414  001406                        BEQ     7$              ;CHECK IF ZERO
2220  006416  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2221  006422  012737  067471  001322        MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
2222  006430  104003                        ERROR   3
2223  006432  016237  000014  001126  7$:   MOV     RKER(R2),$BDDAT ;STORE ERRPR REG.
2224  006440  001406                        BEQ     8$              ;CHECK IF ZERO
2225  006442  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2226  006446  012737  067527  001322        MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
2227  006454  104003                        ERROR   3
2228  006456  016237  000020  001126  8$:   MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
2229  006464  001406                        BEQ     10$             ;CHECK IF EQUAL ZERO
2230  006466  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED RESULTS
2231  006472  012737  067624  001322        MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
2232  006500  104003                        ERROR   3
2233  006502  016237  000026  001126  10$:  MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
2234  006510  012737  002000  001124        MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
```

```
2235  006516  032737  020000  001126          BIT     #ECCW,$BDDAT
2236  006524  001403                          BEQ     11$
2237  006526  052737  020000  001124          BIS     #ECCW,$GDDAT
2238  006534  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
2239  006542  001404                          BEQ     12$             ;YES,CONTINUE TEST
2240  006544  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
2241  006552  104003                          ERROR   3
2242  006554  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2243  006562  001406                          BEQ     13$             ;CHECK IF ZERO
2244  006564  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
2245  006570  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
2246  006576  104003                          ERROR   3
2247  006600  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2248  006606  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
2249  006614  001407                          BEQ     14$             ;YES, ISSUE CONTROLLER CLEAR
2250  006616  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED RESULTS
2251  006624  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
2252  006632  104003                          ERROR   3
2253  006634  012762  100000  000000  14$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
2254  006642  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG.
2255  006650  001414                          BEQ     TST10           ;;YES, GO ON TO NEXT TEST
2256  006652  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
2257  006656  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
2258  006664  012737  066661  001332          MOV     #EM1003,EM4N+2
2259  006672  012737  003437  002014          MOV     #3437,PREREG    ;LOAD PREVIOUS VALUE
2260  006700  104004                          ERROR   4
2261
2262
2263                                  ;;*****************************************************************
2264                                  .SBTTL  **REGISTER INTERACTION TESTS
2265                                  ;*
2266                                  ;*      ALL REGISTER INTERACTION TESTS CONSISTS OF WRITING A
2267                                  ;*      REGISTER AND CHECKING ITS CONTENTS AGAINST EXPECTED
2268                                  ;*      CONTENTS. THEN ALL OTHER REGISTERS ARE READ EXCEPT
2269                                  ;*      THE DATA BUFFER TO CHECK WHETHER THEY HAVE CHANGED FROM
2270                                  ;*      THEIR INITIALIZED CONDITIONS.
2271                                  ;*
2272                                  ;*****************************************************************
2273
2274                                  ;*****************************************************************
2275                                  ;*TEST 10       REGISTER INTERACTION USING BUS ADDRESS (PART 1)
2276                                  ;*
2277                                  ;*      THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLER
2278                                  ;*       CLEAR TO HE RK611 CONTROLLER. IT WILL THEN WRITE THE WORD
2279                                  ;*      COUNT REGISTER TO 0.
2280                                  ;*
2281                                  ;*      THE TEST ITSELF WILL CONSIST OF WRITING THE
2282                                  ;*      BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS AND
2283                                  ;*      TEST IF BUS ADDRESS IS CORRECT AND THAT NO
2284                                  ;*      REGISTER INTERACTION TAKES PLACE.
2285                                  ;*
2286                                  ;*      000000  000010  000200  004000  100000
2287                                  ;*      000001  000020  000400  010000
2288                                  ;*      000002  000040  001000  020000
2289                                  ;*      000004  000100  002000  040000
2290                                  ;*
```

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2291                                    ;;*****************************************************************
2292  006702  000004                    TST10:  SCOPE
2293  006704  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2294  006712  012701  000021                    MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
2295  006716  012737  000001  002010            MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
2296  006724  012737  063465  001320            MOV     #EM4,EM3N       ;LOAD ERROR MESSAGE
2297  006732  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
2298  006740  012737  006746  001110            MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2299                                                                    ;  SUBTEST LOOP
2300
2301  006746                            1$:
2302  006746  005062  000002                    CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
2303  006752  013762  002010  000004            MOV     CONFIG,RKBA(R2) ;WRITE RKBA
2304  006760  016237  000004  001126            MOV     RKBA(R2),$BDDAT ;STORE RKBA
2305  006766  013737  002010  001124            MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
2306  006774  042737  000001  001124            BIC     #1,$GDDAT       ;INITIALIZE READ ONLY BITS
2307  007002  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
2308  007010  001404                            BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
2309  007012  012737  066637  001322            MOV     #EM1002,EM3N+2  ;LOAD ERROR MESSAGE
2310  007020  104003                            ERROR   3
2311  007022                            2$:
2312  007022  016237  000000  001126            MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
2313  007030  022737  000200  001126            CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
2314  007036  001407                            BEQ     3$              ;YES, CONTINUE
2315  007040  012737  000100  001124            MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
2316  007046  012737  067314  001322            MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
2317  007054  104003                            ERROR   3
2318  007056                            3$:
2319  007056  016237  000002  001126            MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
2320  007064  001406                            BEQ     5$              ;CHECK IF ZERO
2321  007066  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2322  007072  012737  067335  001322            MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
2323  007100  104003                            ERROR   3
2324  007102                            5$:
2325  007102  016237  000006  001126            MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
2326  007110  001406                            BEQ     6$              ;CHECK IF ZERO
2327  007112  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2328  007116  012737  067412  001322            MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
2329  007124  104003                            ERROR   3
2330  007126                            6$:
2331  007126  016237  000016  001126            MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2332  007134  001406                            BEQ     7$              ;CHECK IF ZERO
2333  007136  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2334  007142  012737  067556  001322            MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
2335  007150  104003                            ERROR   3
2336  007152                            7$:
2337  007152  016237  000010  001126            MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2338  007160  022737  000100  001126            CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
2339  007166  001407                            BEQ     8$              ;YES,CONTINUE
2340  007170  012737  000100  001124            MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
2341  007176  012737  067450  001322            MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
2342  007204  104003                            ERROR   3
2343  007206                            8$:
2344  007206  016237  000012  001126            MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
2345  007214  001406                            BEQ     9$              ;CHECK IF ZERO
2346  007216  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
```

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2347  007222  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
2348  007230  104003                          ERROR   3
2349  007232  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
2350  007240  001406                          BEQ     10$             ;CHECK IF ZERO
2351  007242  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2352  007246  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
2353  007254  104003                          ERROR   3
2354  007256                          10$:
2355  007256  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
2356  007264  001406                          BEQ     12$             ;CHECK IF ZERO
2357  007266  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2358  007272  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
2359  007300  104003                          ERROR   3
2360  007302                          12$:
2361  007302  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
2362  007310  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
2363  007316  032737  020000  001126          BIT     #ECCW,$BDDAT
2364  007324  001403                          BEQ     13$
2365  007326  052737  020000  001124          BIS     #ECCW,$GDDAT
2366  007334  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
2367  007342  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
2368  007344  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
2369  007352  104003                          ERROR   3
2370  007354                          14$:
2371  007354  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2372  007362  001406                          BEQ     15$             ;CHECK IF ZERO
2373  007364  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2374  007370  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
2375  007376  104003                          ERROP   3
2376  007400  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2377  007406  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
2378  007414  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
2379  007422  001404                          BEQ     18$             ;YES,INITIALIZE RK611
2380  007424  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
2381  007432  104003                          ERROR   3
2382  007434  016237  000004  002014  18$:    MOV     RKBA(R2),PREREG ;GET PREVIOUS CONTENTS
2383  007442  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
2384  007450  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;GET CURRENT VALUE
2385  007456  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2386  007462  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
2387  007470  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
2388  007472  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
2389  007500  012737  066637  001332          MOV     #EM1002,EM4N+2
2390  007506  104004                          ERROR   4
2391  007510  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2392  007512  000241                          CLC                     ;SHIFT IN ZERO
2393  007514  006137  002010                  ROL     CONFIG
2394  007520  005301                          DEC     R1              ;CHECK IF FINISHED
2395  007522  001402                          BEQ     TST11           ;;YES, GO ON TO NEXT TEST
2396  007524  000137  006746                  JMP     1$
2397
2398                          ;;*****************************************************************
2399                          ;*TEST 11        REGISTER INTERACTION USING BUS ADDRESS (PART 2)
2400                          ;*
2401                          ;*      THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLER
2402                          ;*      CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WORD
```

```
                                        ;*      COUNT REGISTER TO 0.
                                        ;*
                                        ;*      THE TEST ITSELF WILL CONSIST OF WRITING THE
                                        ;*      BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS AND
                                        ;*      TEST IF BUS ADDRESS IS CORRECT AND THAT NO
                                        ;*      REGISTER INTERACTION TAKES PLACE.
                                        ;*
                                        ;*      177777  177767  177577  173777  077777
                                        ;*      177776  177757  177377  167777
                                        ;*      177775  177737  176777  157777
                                        ;*      177773  177677  175777  137777
                                        ;*
                                        ;**********************************************************************
007530  000004                    TST11:  SCOPE
007532  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
007540  012701  000021                    MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
007544  012737  177776  002010            MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
007552  012737  063465  001320            MOV     #EM4,EM3N       ;LOAD ERROR MESSAGE
007560  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
007566  012737  007574  001110            MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                  ;  SUBTEST LOOP
007574                              1$:
007574  005062  000002                    CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
007600  013762  002010  000004            MOV     CONFIG,RKBA(R2) ;WRITE RKBA
007606  016237  000004  001126            MOV     RKBA(R2),$BDDAT ;STORE RKBA
007614  013737  002010  001124            MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
007622  042737  000001  001124            BIC     #1,$GDDAT       ;INITIALIZE READ ONLY BITS
007630  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
007636  001404                            BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
007640  012737  066637  001322            MOV     #EM1002,EM3N+2  ;LOAD ERROR MESSAGE
007646  104003                            ERROR   3
007650                              2$:
007650  016237  000000  001126            MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
007656  022737  000200  001126            CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
007664  001407                            BEQ     3$              ;YES, CONTINUE
007666  012737  000100  001124            MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
007674  012737  067314  001322            MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
007702  104003                            ERROR   3
007704                              3$:
007704  016237  000002  001126            MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
007712  001406                            BEQ     5$              ;CHECK IF ZERO
007714  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
007720  012737  067335  001322            MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
007726  104003                            ERROR   3
007730                              5$:
007730  016237  003006  001126            MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
007736  001406                            BEQ     6$              ;CHECK IF ZERO
007740  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
007744  012737  067412  001322            MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
007752  104003                            ERROR   3
007754                              6$:
007754  016237  000016  001126            MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
007762  001406                            BEQ     7$              ;CHECK IF ZERO
007764  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
007770  012737  067556  001322            MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
```

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2459  007776  104003                        ERROR   3
2460  010000                        7$:
2461  010000  016237  000010  001126        MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2462  010006  022737  000100  001126        CMP     #IR,$BDDAT       ;CHECK IF CS2 CORRECT
2463  010014  001407                        BEQ     8$               ;YES,CONTINUE
2464  010016  012737  000100  001124        MOV     #IR,$GDDAT       ;LOAD EXPECTED CONTENTS
2465  010024  012737  067450  001322        MOV     #EM1021,EM3N+2   ;LOAD ERROR MESSAGE
2466  010032  104003                        ERROR   3
2467  010034                        8$:
2468  010034  016237  000012  001126        MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
2469  010042  001406                        BEQ     9$              ;CHECK IF ZERO
2470  010044  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2471  010050  012737  067471  001322        MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
2472  010056  104003                        ERROR   3
2473  010060  016237  000014  001126  9$:   MOV     RKER(R2),$BDDAT ;STORE ERROR REG
2474  010066  001406                        BEQ     10$             ;CHECK IF ZERO
2475  010070  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2476  010074  012737  067527  001322        MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
2477  010102  104003                        ERROR   3
2478  010104                        10$:
2479  010104  016237  000020  001126        MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
2480  010112  001406                        BEQ     12$             ;CHECK IF ZERO
2481  010114  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2482  010120  012737  067624  001322        MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
2483  010126  104003                        ERROR   3
2484  010130                        12$:
2485  010130  016237  000026  001126        MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
2486  010136  012737  002000  001124        MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
2487  010144  032737  020000  001126        BIT     #ECCW,$BDDAT
2488  010152  001403                        BEQ     13$
2489  010154  052737  020000  001124        BIS     #ECCW,$GDDAT
2490  010162  023737  001124  001126  13$:  CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
2491  010170  001404                        BEQ     14$              ;YES,ISSUE CONTROLLER CLEAR
2492  010172  012737  067651  001322        MOV     #EM1026,EM3N+2   ;LOAD ERROR MESSAGE
2493  010200  104003                        ERROR   3
2494  010202                        14$:
2495  010202  016237  000032  001126        MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2496  010210  001406                        BEQ     15$               ;CHECK IF ZERO
2497  010212  005037  001124                CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
2498  010216  012737  067727  001322        MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
2499  010224  104003                        ERROR   3
2500  010226  016237  000030  001126  15$:  MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2501  010234  012737  004066  001124  16$:  MOV     #4066,$GDDAT      ;USE 4066
2502  010242  023737  001124  001126  17$:  CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
2503  010250  001404                        BEQ     18$               ;YES,INITIALIZE RK611
2504  010252  012737  067702  001322        MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
2505  010260  104003                        ERROR   3
2506  010262  016237  000004  002014  18$:  MOV     RKBA(R2),PREREG   ;GET PREVIOUS CONTENTS
2507  010270  012762  100000  000000        MOV     #CCLR,RKCS1(R2)   ;CLEAR RK611 CONTROLLER
2508  010276  016237  000004  001126        MOV     RKBA(R2),$BDDAT   ;GET CURRENT VALUE
2509  010304  005037  001124                CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
2510  010310  023737  001124  001126        CMP     $GDDAT,$BDDAT     ;CHECK IF RKBA CORRECT
2511  010316  001407                        BEQ     19$               ;YES, CHECK IF FINISHED
2512  010320  012737  063403  001330        MOV     #EM3,EM4N         ;LOAD ERROR MESSAGE
2513  010326  012737  066637  001332        MOV     #EM1002,EM4N+2
2514  010334  104004                        ERROR   4
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                                19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
                                        SEC                     ;SHIFT IN ONE
                                        ROL     CONFIG
                                        DEC     R1              ;CHECK IF FINISHED
                                        BEQ     TST12           ;;YES, GO ON TO NEXT TEST
                                        JMP     1$

                                ;;*****************************************************************
                                ;*TEST 12       REGISTER INTERACTION USING BUS ADDRESS (PART 3)
                                ;*
                                ;*      THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLER
                                ;*      CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WORD
                                ;*      COUNT REGISTER TO 0.
                                ;*
                                ;*      THE TEST ITSELF WILL CONSIST OF WRITING THE
                                ;*      BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS AND
                                ;*      TEST IF BUS ADDRESS IS CORRECT AND THAT NO
                                ;*      REGISTER INTERACTION TAKES PLACE.
                                ;*
                                ;*      000001  000037  000777  017777  000000
                                ;*      000003  000077  001777  037777
                                ;*      000007  000177  003777  077777
                                ;*      000017  000377  007777  177777
                                ;*
                                ;*****************************************************************
                                TST12:  SCOPE
010360  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
010366  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
010372  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
010376  012737  063465  001320          MOV     #EM4,EM3N       ;LOAD ERROR MESSAGE
010404  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
010412  012737  010420  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP

010420                          1$:
010420  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
010424  013762  002010  000004          MOV     CONFIG,RKBA(R2) ;WRITE RKBA
010432  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE RKBA
010440  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
010446  042737  000001  001124          BIC     #1,$GDDAT       ;INITIALIZE READ ONLY BITS
010454  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
010462  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
010464  012737  066637  001322          MOV     #EM1002,EM3N+2  ;LOAD ERROR MESSAGE
010472  104003                          ERROR   3
010474                          2$:
010474  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
010502  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
010510  001407                          BEQ     3$              ;YES, CONTINUE
010512  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
010520  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
010526  104003                          ERROR   3
010530                          3$:
010530  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
010536  001406                          BEQ     5$              ;CHECK IF ZERO
010540  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
010544  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
```

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2571  010552  104003                          ERROR   3
2572  010554                          5$:
2573  010554  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
2574  010562  001406                          BEQ     6$              ;CHECK IF ZERO
2575  010564  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2576  010570  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
2577  010576  104003                          ERROR   3
2578  010600                          6$:
2579  010600  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2580  010606  001406                          BEQ     7$              ;CHECK IF ZERO
2581  010610  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2582  010614  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
2583  010622  104003                          ERROR   3
2584  010624                          7$:
2585  010624  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2586  010632  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
2587  010640  001407                          BEQ     8$              ;YES,CONTINUE
2588  010642  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
2589  010650  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
2590  010656  104003                          ERROR   3
2591  010660                          8$:
2592  010660  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
2593  010666  001406                          BEQ     9$              ;CHECK IF ZERO
2594  010670  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2595  010674  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
2596  010702  104003                          ERROR   3
2597  010704  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
2598  010712  001406                          BEQ     10$             ;CHECK IF ZERO
2599  010714  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2600  010720  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
2601  010726  104003                          ERROR   3
2602  010730                          10$:
2603  010730  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
2604  010736  001406                          BEQ     12$             ;CHECK IF ZERO
2605  010740  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2606  010744  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
2607  010752  104003                          ERROR   3
2608  010754                          12$:
2609  010754  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
2610  010762  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
2611  010770  032737  020000  001126          BIT     #ECCW,$BDDAT
2612  010776  001403                          BEQ     13$
2613  011000  052737  020000  001124          BIS     #ECCW,$GDDAT
2614  011006  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
2615  011014  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
2616  011016  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
2617  011024  104003                          ERROR   3
2618  011026                          14$:
2619  011026  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2620  011034  001406                          BEQ     15$             ;CHECK IF ZERO
2621  011036  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2622  011042  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
2623  011050  104003                          ERROR   3
2624  011052  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2625  011060  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
2626  011066  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
```

```
 2627  011074  001404                          BEQ     18$             ;YES,INITIALIZE RK611
 2628  011076  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 2629  011104  104003                          ERROR   3
 2630  011106  016237  000004  002014  18$:    MOV     RKBA(R2),PREREG ;GET PREVIOUS CONTENTS
 2631  011114  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
 2632  011122  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;GET CURRENT VALUE
 2633  011130  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 2634  011134  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
 2635  011142  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
 2636  011144  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
 2637  011152  012737  066637  001332          MOV     #EM1002,EM4N+2
 2638  011160  104004                          ERROR   4
 2639  011162  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 2640  011164  000261                          SEC                     ;SHIFT IN ONE
 2641  011166  006137  002010                  ROL     CONFIG
 2642  011172  005301                          DEC     R1              ;CHECK IF FINISHED
 2643  011174  001402                          BEQ     TST13           ;;YES, GO ON TO NEXT TEST
 2644  011176  000137  010420                  JMP     1$
 2645
 2646                          ;;*****************************************************************
 2647                          ;*TEST 13       REGISTER INTERACTION USING BUS ADDRESS (PART 4)
 2648                          ;*
 2649                          ;*       THIS TEST WILL INITIALIZE ALL REGISTERS WITH A CONTROLLER
 2650                          ;*       CLEAR TO THE RK611 CONTROLLER. IT WILL THEN WRITE THE WORD
 2651                          ;*       COUNT REGISTER TO 0.
 2652                          ;*
 2653                          ;*       THE TEST ITSELF WILL CONSIST OF WRITING THE
 2654                          ;*       BUS ADDRESS REGISTER WITH THE FOLLOWING CONFIGURATIONS AND
 2655                          ;*       TEST IF BUS ADDRESS IS CORRECT AND THAT NO
 2656                          ;*       REGISTER INTERACTION TAKES PLACE.
 2657                          ;*
 2658                          ;*       100000  174000  177600  177770  000000
 2659                          ;*       140000  176000  177700  177774
 2660                          ;*       160000  177000  177740  177776
 2661                          ;*       170000  177400  177760  177777
 2662                          ;*
 2663                          ;;*****************************************************************
 2664  011202  000004  TST13:  SCOPE
 2665  011204  012737  000144  001200          MOV     #100.,STIMES    ;;DO 100. ITERATIONS
 2666  011212  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
 2667  011216  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
 2668  011222  012737  063465  001320          MOV     #EM4,EM3N       ;LOAD ERROR MESSAGE
 2669  011230  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
 2670  011236  012737  011244  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
 2671                                                                  ;  SUBTEST LOOP
 2672
 2673  011244                          1$:
 2674  011244  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
 2675  011250  013762  002010  000004          MOV     CONFIG,RKBA(R2) ;WRITE RKBA
 2676  011256  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE RKBA
 2677  011264  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
 2678  011272  042737  000001  001124          BIC     #1,$GDDAT       ;INITIALIZE READ ONLY BITS
 2679  011300  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKBA CORRECT
 2680  011306  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
 2681  011310  012737  066637  001322          MOV     #EM1002,EM3N+2  ;LOAD ERROR MESSAGE
 2682  011316  104003                          ERROR   3
```

```
2683  011320                          2$:
2684  011320  016237  000000  001126        MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
2685  011326  022737  000200  001126        CMP     #RDY,$BDDAT      ;CHECK IF CS1 CORRECT
2686  011334  001407                        BEQ     3$               ;YES, CONTINUE
2687  011336  012737  000100  001124        MOV     #IR,$GDDAT       ;LOAD EXPECTED RESULTS
2688  011344  012737  067314  001322        MOV     #EM1017,EM3N+2   ;LOAD ERROR MESSAGE
2689  011352  104003                        ERROR   3
2690  011354                          3$:
2691  011354  016237  000002  001126        MOV     RKWC(R2),$BDDAT  ;STORE WORD COUNT REG
2692  011362  001406                        BEQ     5$               ;CHECK IF ZERO
2693  011364  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2694  011370  012737  067335  001322        MOV     #EM1018,EM3N+2   ;LOAD ERROR MESSAGE
2695  011376  104003                        ERROR   3
2696  011400                          5$:
2697  011400  016237  000006  001126        MOV     RKDA(R2),$BDDAT  ;STORE DISK AVERAGE REG
2698  011406  001406                        BEQ     6$               ;CHECK IF ZERO
2699  011410  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2700  011414  012737  067412  001322        MOV     #EM1020,EM3N+2   ;LOAD ERROR MESSAGE
2701  011422  104003                        ERROR   3
2702  011424                          6$:
2703  011424  016237  000016  001126        MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2704  011432  001406                        BEQ     7$               ;CHECK IF ZERO
2705  011434  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2706  011440  012737  067556  001322        MOV     #EM1024,EM3N+2   ;LOAD ERROR MESSAGE
2707  011446  104003                        ERROR   3
2708  011450                          7$:
2709  011450  016237  000010  001126        MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2710  011456  022737  000100  001126        CMP     #IR,$BDDAT       ;CHECK IF CS2 CORRECT
2711  011464  001407                        BEQ     8$               ;YES,CONTINUE
2712  011466  012737  000100  001124        MOV     #IR,$GDDAT       ;LOAD EXPECTED CONTENTS
2713  011474  012737  067450  001322        MOV     #EM1021,EM3N+2   ;LOAD ERROR MESSAGE
2714  011502  104003                        ERROR   3
2715  011504                          8$:
2716  011504  016237  000012  001126        MOV     RKDS(R2),$BDDAT  ;STORE DRIVE STATUS REG
2717  011512  001406                        BEQ     9$               ;CHECK IF ZERO
2718  011514  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2719  011520  012737  067471  001322        MOV     #EM1022,EM3N+2   ;LOAD ERROR MESSAGE
2720  011526  104003                        ERROR   3
2721  011530  016237  000014  001126  9$:   MOV     RKER(R2),$BDDAT  ;STORE ERROR REG
2722  011536  001406                        BEQ     10$              ;CHECK IF ZERO
2723  011540  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2724  011544  012737  067527  001322        MOV     #EM1023,EM3N+2   ;LOAD ERROR MESSAGE
2725  011552  104003                        ERROR   3
2726  011554                          10$:
2727  011554  016237  000020  001126        MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
2728  011562  001406                        BEQ     12$              ;CHECK IF ZERO
2729  011564  005037  001124                CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
2730  011570  012737  067624  001322        MOV     #EM1025,EM3N+2   ;LOAD ERROR MESSAGE
2731  011576  104003                        ERROR   3
2732  011600                          12$:
2733  011600  016237  000026  001126        MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
2734  011606  012737  002000  001124        MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
2735  011614  032737  020000  001126        BIT     #ECCW,$BDDAT
2736  011622  001403                        BEQ     13$
2737  011624  052737  020000  001124        BIS     #ECCW,$GDDAT
2738  011632  023737  001124  001126  13$:  CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
```

```
2739  011640  001404                          BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
2740  011642  012737  067651  001322          MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
2741  011650  104003                          ERROR   3
2742  011652                          14$:
2743  011652  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
2744  011660  001406                          BEQ     15$                     ;CHECK IF ZERO
2745  011662  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
2746  011666  012737  067727  001322          MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
2747  011674  104003                          ERROR   3
2748  011676  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
2749  011704  012737  004066  001124  16$:    MOV     #4066,$GDDAT            ;USE 4066
2750  011712  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
2751  011720  001404                          BEQ     18$                     ;YES,INITIALIZE RK611
2752  011722  012737  067702  001322          MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
2753  011730  104003                          ERROR   3
2754  011732  016237  000004  002014  18$:    MOV     RKBA(R2),PREREG ;GET PREVIOUS CONTENTS
2755  011740  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
2756  011746  016237  000004  001126          MOV     RKBA(R2),$BDDAT         ;GET CURRENT VALUE
2757  011754  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
2758  011760  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;CHECK IF RKBA CORRECT
2759  011766  001407                          BEQ     19$                     ;YES, CHECK IF FINISHED
2760  011770  012737  063403  001330          MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
2761  011776  012737  066637  001332          MOV     #EM1002,EM4N+2
2762  012004  104004                          ERROR   4
2763  012006  104415                  19$:    SCOP1                           ;CHECK IF LOOP ON ERROR
2764  012010  000261                          SEC                             ;SHIFT IN ONE
2765  012012  006037  002010                  ROR     CONFIG
2766  012016  005301                          DEC     R1                      ;CHECK IF FINISHED
2767  012020  001402                          BEQ     TST14                   ;;YES, GO ON TO NEXT TEST
2768  012022  000137  011244                  JMP     1$
2769
2770                                  ;;*****************************************************************
2771                                  ;*TEST 14       REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 1)
2772                                  ;*
2773                                  ;*      THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR AND
2774                                  ;*      BY WRITING THE WORD COUNT TO ZERO.
2775                                  ;*
2776                                  ;*      THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
2777                                  ;*      AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
2778                                  ;*      SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
2779                                  ;*      THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
2780                                  ;*      REGISTER INTERACTION TAKES PLACE.
2781                                  ;*
2782                                  ;*      000000  000020  000400  010000
2783                                  ;*      000002  000040  001000  020000
2784                                  ;*      000004  000100  002000  040000
2785                                  ;*      000010  000200  004000
2786                                  ;*
2787                                  ;*****************************************************************
2788  012026  000004          TST14:  SCOPE
2789  012030  012737  000144  001200          MOV     #100.,$TIMES            ;;DO 100. ITERATIONS
2790  012036  012701  000021                  MOV     #17.,R1                 ;LOAD NUMBER OF PATTERNS
2791  012042  005037  002010                  CLR     CONFIG                  ;LOAD INITIAL CONFIGURATION
2792  012046  012737  000001  002012          MOV     #000001,CONFG1
2793  012054  012737  064321  001320          MOV     #EM16,EM3N              ;LOAD ERROR MESSAGE
2794  012062  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
```

```
2795  012070  012737  012076  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2796                                                                  ;  SUBTEST LOOP
2797
2798  012076                          1$:
2799  012076  005062  000002                 CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
2800  012102  013762  002010  000000         MOV     CONFIG,RKCS1(R2)        ;WRITE RKCS1
2801  012110  016237  000000  001126         MOV     RKCS1(R2),$BDDAT        ;STORE RKCS1
2802  012116  013737  002010  001124         MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
2803  012124  042737  064000  001124         BIC     #DI!SPAR!CTO,$GDDAT ;INITIALIZE READ ONLY BITS
2804  012132  052737  000200  001124         BIS     #RDY,$GDDAT
2805  012140  023737  001124  001126         CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
2806  012146  001404                         BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
2807  012150  012737  066574  001322         MOV     #EM1000,EM3N+2  ;LOAD ERROR MESSAGE
2808  012156  104003                         ERROR   3
2809  012160                          2$:
2810  012160  016237  000004  001126         MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
2811  012166  001406                         BEQ     4$              ;CHECK IF ZERO
2812  012170  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2813  012174  012737  067365  001322         MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
2814  012202  104003                         ERROR   3
2815  012204                          4$:
2816  012204  016237  000002  001126         MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
2817  012212  001406                         BEQ     5$              ;CHECK IF ZERO
2818  012214  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2819  012220  012737  067335  001322         MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
2820  012226  104003                         ERROR   3
2821  012230                          5$:
2822  012230  016237  000006  001126         MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
2823  012236  001406                         BEQ     6$              ;CHECK IF ZERO
2824  012240  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2825  012244  012737  067412  001322         MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
2826  012252  104003                         ERROR   3
2827  012254                          6$:
2828  012254  016237  000016  001126         MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2829  012262  001406                         BEQ     7$              ;CHECK IF ZERO
2830  012264  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2831  012270  012737  067556  001322         MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
2832  012276  104003                         ERROR   3
2833  012300                          7$:
2834  012300  016237  000010  001126         MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
2835  012306  022737  000100  001126         CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
2836  012314  001407                         BEQ     8$              ;YES,CONTINUE
2837  012316  012737  000100  001124         MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
2838  012324  012737  067450  001322         MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
2839  012332  104003                         ERROR   3
2840  012334                          8$:
2841  012334  016237  000012  001126         MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
2842  012342  001406                         BEQ     9$              ;CHECK IF ZERO
2843  012344  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2844  012350  012737  067471  001322         MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
2845  012356  104003                         ERROR   3
2846  012360  016237  000014  001126  9$:    MOV     RKER(R2),$BDDAT ;STORE ERROR REG
2847  012366  001406                         BEQ     10$             ;CHECK IF ZERO
2848  012370  005037  001124                 CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2849  012374  012737  067527  001322         MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
2850  012402  104003                         ERROR   3
```

```
                                        10$:
012404                                          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
012404  016237  000020  001126                  BEQ     12$               ;CHECK IF ZERO
012412  001406                                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
012414  005037  001124                          MOV     #EM1025,EM3N+2    ;LOAD ERROR MESSAGE
012420  012737  067624  001322                  ERROR   3
012426  104003                                  12$:
012430                                          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
012430  016237  000026  001126                  MOV     #MEWD,$GDDAT      ;LOAD EXPECTED MR1
012436  012737  002000  001124                  BIT     #ECCW,$BDDAT
012444  032737  020000  001126                  BEQ     13$
012452  001403                                  BIS     #ECCW,$GDDAT
012454  052737  020000  001124          13$:    CMP     $GDDAT,$BDDAT     ;CHECK IF MR1 CORRECT
012462  023737  001124  001126                  BEQ     14$               ;YES,ISSUE CONTROLLER CLEAR
012470  001404                                  MOV     #EM1026,EM3N+2    ;LOAD ERROR MESSAGE
012472  012737  067651  001322                  ERROR   3
012500  104003                                  14$:
012502                                          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
012502  016237  000032  001126                  BEQ     15$               ;CHECK IF ZERO
012510  001406                                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
012512  005037  001124                          MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
012516  012737  067727  001322                  ERROR   3
012524  104003                          15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
012526  016237  000030  001126                  BIT     #CFMT,CONFIG      ;CHECK IF IN 18 BIT FORMAT
012534  032737  010000  002010                  BEQ     16$               ;NO, USE 4066
012542  001404                                  MOV     #5066,$GDDAT      ;USE 5066
012544  012737  005066  001124                  BR      17$     ;CHECK IF POSITION CORRECT
012552  000403
012554  012737  004066  001124          16$:    MOV     #4066,$GDDAT      ;USE 4066
012562  023737  001124  001126          17$:    CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
012570  001404                                  BEQ     18$               ;YES,INITIALIZE RK611
012572  012737  067702  001322                  MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
012600  104003                                  ERROR   3
012602  016237  000000  002014          18$:    MOV     RKCS1(R2),PREREG          ;GET PREVIOUS CONTENTS
012610  012762  100000  000000                  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
012616  016237  000000  001126                  MOV     RKCS1(R2),$BDDAT          ;GET CURRENT VALUE
012624  012737  000200  001124                  MOV     #RDY,$GDDAT       ;LOAD EXPECTED CONTENTS
012632  023737  001124  001126                  CMP     $GDDAT,$BDDAT     ;CHECK IF RKCS1 CORRECT
012640  001407                                  BEQ     19$               ;YES, CHECK IF FINISHED
012642  012737  063403  001330                  MOV     #EM3,EM4N         ;LOAD ERROR MESSAGE
012650  012737  066574  001332                  MOV     #EM1000,EM4N+2
012656  104004                                  ERROR   4
012660  104415                          19$:    SCOP1                     ;CHECK IF LOOP ON ERROR
012662  000241                                  CLC                       ;SHIFT IN ZERO
012664  006137  002012                          ROL     CONFG1
012670  013737  002012  002010                  MOV     CONFG1,CONFIG   ;MAKE SURE CONTROLLER CLEAR AMP
012676  042737  100001  002010                  BIC     #CCLR!GO,CONFIG ;   GO DO NOT SET
012704  005301                                  DEC     R1                ;CHECK IF FINISHED
012706  001402                                  BEQ     TST15             ;;YES, GO ON TO NEXT TEST
012710  000137  012076                          JMP     1$

                        ;;*****************************************************************
                        ;*TEST 15       REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 2)
                        ;*
                        ;*      THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR AND
                        ;*      BY WRITING THE WORD COUNT TO ZERO.
```

```
2907                                    ;*
2908                                    ;*      THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
2909                                    ;*      AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
2910                                    ;*      SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
2911                                    ;*      THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
2912                                    ;*      REGISTER INTERACTION TAKES PLACE.
2913                                    ;*
2914                                    ;*      077776  077756  077376  067776
2915                                    ;*      077774  077736  076776  057776
2916                                    ;*      077772  077676  075776  037776
2917                                    ;*      077766  077576  073776
2918                                    ;*
2919                                    ;**************************************************************************
2920   012714  000004                   TST15:  SCOPE
2921   012716  012737  000144  001200           MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2922   012724  012701  000021                   MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
2923   012730  012737  077776  002010           MOV     #077776,CONFIG  ;LOAD INITIAL CONFIGURATION
2924   012736  012737  177776  002012           MOV     #177776,CONFG1
2925   012744  012737  064321  001320           MOV     #EM16,EM3N      ;LOAD ERROR MESSAGE
2926   012752  012762  100000  000000           MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
2927   012760  012737  012766  001110           MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2928                                                                    ;  SUBTEST LOOP
2929
2930   012766                           1$:
2931   012766  005062  000002                   CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
2932   012772  013762  002010  000000           MOV     CONFIG,RKCS1(R2)        ;WRITE RKCS1
2933   013000  016237  000000  001126           MOV     RKCS1(R2),$BDDAT        ;STORE RKCS1
2934   013006  013737  002010  001124           MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
2935   013014  042737  064000  001124           BIC     #DI!SPAR!CTO,$GDDAT ;INITIALIZE READ ONLY BITS
2936   013022  052737  000200  001124           BIS     #RDY,$GDDAT
2937   013030  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
2938   013036  001404                           BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
2939   013040  012737  066574  001322           MOV     #EM1000,EM3N+2  ;LOAD ERROR MESSAGE
2940   013046  104003                           ERROR   3
2941   013050                           2$:
2942   013050  016237  000004  001126           MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
2943   013056  001406                           BEQ     4$              ;CHECK IF ZERO
2944   013060  005037  001124                   CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2945   013064  012737  067365  001322           MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
2946   013072  104003                           ERROR   3
2947   013074                           4$:
2948   013074  016237  000002  001126           MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
2949   013102  001406                           BEQ     5$              ;CHECK IF ZERO
2950   013104  005037  001124                   CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2951   013110  012737  067335  001322           MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
2952   013116  104003                           ERROR   3
2953   013120                           5$:
2954   013120  016237  000006  001126           MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
2955   013126  001406                           BEQ     6$              ;CHECK IF ZERO
2956   013130  005037  001124                   CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
2957   013134  012737  067412  001322           MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
2958   013142  104003                           ERROR   3
2959   013144                           6$:
2960   013144  016237  000016  001126           MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
2961   013152  001406                           BEQ     7$              ;CHECK IF ZERO
2962   013154  005037  001124                   CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
```

```
 2963  013160  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 2964  013166  104003                          ERROR   3
 2965  013170                          7$:
 2966  013170  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 2967  013176  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
 2968  013204  001407                          BEQ     8$              ;YES,CONTINUE
 2969  013206  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
 2970  013214  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
 2971  013222  104003                          ERROR   3
 2972  013224                          8$:
 2973  013224  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 2974  013232  001406                          BEQ     9$              ;CHECK IF ZERO
 2975  013234  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 2976  013240  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 2977  013246  104003                          ERROR   3
 2978  013250  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 2979  013256  001406                          BEQ     10$             ;CHECK IF ZERO
 2980  013260  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 2981  013264  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 2982  013272  104003                          ERROR   3
 2983  013274                          10$:
 2984  013274  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 2985  013302  001406                          BEQ     12$             ;CHECK IF ZERO
 2986  013304  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 2987  013310  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 2988  013316  104003                          ERROR   3
 2989  013320                          12$:
 2990  013320  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 2991  013326  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 2992  013334  032737  020000  001126          BIT     #ECCW,$BDDAT
 2993  013342  001403                          BEQ     13$
 2994  013344  052737  020000  001124          BIS     #ECCW,$GDDAT
 2995  013352  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 2996  013360  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
 2997  013362  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 2998  013370  104003                          ERROR   3
 2999  013372                          14$:
 3000  013372  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 3001  013400  001406                          BEQ     15$             ;CHECK IF ZERO
 3002  013402  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3003  013406  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 3004  013414  104003                          ERROR   3
 3005  013416  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
 3006  013424  032737  010000  002010          BIT     #CFMT,CONFIG    ;CHECK IF IN 18 BIT FORMAT
 3007  013432  001404                          BEQ     16$             ;NO, USE 4066
 3008  013434  012737  005066  001124          MOV     #5066,$GDDAT    ;USE 5066
 3009  013442  000403                          BR      17$     ;CHECK IF POSITION CORRECT
 3010
 3011  013444  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
 3012  013452  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
 3013  013460  001404                          BEQ     18$             ;YES,INITIALIZE RK611
 3014  013462  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 3015  013470  104003                          ERROR   3
 3016  013472  016237  000000  002014  18$:    MOV     RKCS1(R2),PREREG        ;GET PREVIOUS CONTENTS
 3017  013500  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
 3018  013506  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;GET CURRENT VALUE
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3019  013514  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
3020  013522  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
3021  013530  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
3022  013532  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
3023  013540  012737  066574  001332          MOV     #EM1000,EM4N+2
3024  013546  104004                          ERROR   4
3025  013550  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
3026  013552  000261                          SEC                     ;SHIFT IN ONE
3027  013554  006137  002012                  ROL     CONFG1
3028  013560  013737  002012  002010          MOV     CONFG1,CONFIG   ;MAKE SURE CONTROLLER CLEAR AMP
3029  013566  042737  100001  002010          BIC     #CCLR!GO,CONFIG ;   GO DO NOT SET
3030  013574  005301                          DEC     R1              ;CHECK IF FINISHED
3031  013576  001402                          BEQ     TST16           ;;YES, GO ON TO NEXT TEST
3032  013600  000137  012766                  JMP     1$
3033
3034                                  ;;*****************************************************************
3035                                  ;*TEST 16       REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 3)
3036                                  ;*
3037                                  ;*      THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR AND
3038                                  ;*      BY WRITING THE WORD COUNT TO ZERO.
3039                                  ;*
3040                                  ;*      THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
3041                                  ;*      AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
3042                                  ;*      SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
3043                                  ;*      THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
3044                                  ;*      REGISTER INTERACTION TAKES PLACE.
3045                                  ;*
3046                                  ;*      000002  000076  001776  037776
3047                                  ;*      000006  000176  003776  077776
3048                                  ;*      000016  000376  007776  000000
3049                                  ;*      000036  000776  017776
3050                                  ;*
3051                                  ;*****************************************************************
3052  013604  000004                  TST16:  SCOPE
3053  013606  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3054  013614  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
3055  013620  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
3056  013624  005037  002012                  CLR     CONFG1
3057  013630  012737  064321  001320          MOV     #EM16,EM3N      ;LOAD ERROR MESSAGE
3058  013636  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
3059  013644  012737  013652  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
3060                                                                  ;   SUBTEST LOOP
3061
3062  013652                          1$:
3063  013652  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
3064  013656  013762  002010  000000          MOV     CONFIG,RKCS1(R2)        ;WRITE RKCS1
3065  013664  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;STORE RKCS1
3066  013672  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
3067  013700  042737  064000  001124          BIC     #DI!SPAR!CTO,$GDDAT ;INITIALIZE READ ONLY BITS
3068  013706  052737  000200  001124          BIS     #RDY,$GDDAT
3069  013714  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
3070  013722  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
3071  013724  012737  066574  001322          MOV     #EM1000,EM3N+2  ;LOAD ERROR MESSAGE
3072  013732  104003                          ERROR   3
3073  013734                          2$:
3074  013734  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
```

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3075  013742  001406                        BEQ     4$                      ;CHECK IF ZERO
3076  013744  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3077  013750  012737  067365  001322        MOV     #EM1019,EM3N+2          ;LOAD ERROR MESSAGE
3078  013756  104003                        ERROR   3
3079  013760                          4$:
3080  013760  016237  000002  001126        MOV     RKWC(R2),$BDDAT         ;STORE WORD COUNT REG
3081  013766  001406                        BEQ     5$                      ;CHECK IF ZERO
3082  013770  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3083  013774  012737  067335  001322        MOV     #EM1018,EM3N+2          ;LOAD ERROR MESSAGE
3084  014002  104003                        ERROR   3
3085  014004                          5$:
3086  014004  016237  000006  001126        MOV     RKDA(R2),$BDDAT         ;STORE DISK AVERAGE REG
3087  014012  001406                        BEQ     6$                      ;CHECK IF ZERO
3088  014014  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3089  014020  012737  067412  001322        MOV     #EM1020,EM3N+2          ;LOAD ERROR MESSAGE
3090  014026  104003                        ERROR   3
3091  014030                          6$:
3092  014030  016237  000016  001126        MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY/OFFSET REG.
3093  014036  001406                        BEQ     7$                      ;CHECK IF ZERO
3094  014040  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3095  014044  012737  067556  001322        MOV     #EM1024,EM3N+2          ;LOAD ERROR MESSAGE
3096  014052  104003                        ERROR   3
3097  014054                          7$:
3098  014054  016237  000010  001126        MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.2
3099  014062  022737  000100  001126        CMP     #IR,$BDDAT              ;CHECK IF CS2 CORRECT
3100  014070  001407                        BEQ     8$                      ;YES,CONTINUE
3101  014072  012737  000100  001124        MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
3102  014100  012737  067450  001322        MOV     #EM1021,EM3N+2          ;LOAD ERROR MESSAGE
3103  014106  104003                        ERROR   3
3104  014110                          8$:
3105  014110  016237  000012  001126        MOV     RKDS(R2),$BDDAT         ;STORE DRIVE STATUS REG
3106  014116  001406                        BEQ     9$                      ;CHECK IF ZERO
3107  014120  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3108  014124  012737  067471  001322        MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
3109  014132  104003                        ERROR   3
3110  014134  016237  000014  001126  9$:   MOV     RKER(R2),$BDDAT         ;STORE ERROR REG
3111  014142  001406                        BEQ     10$                     ;CHECK IF ZERO
3112  014144  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3113  014150  012737  067527  001322        MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
3114  014156  104003                        ERROR   3
3115  014160                          10$:
3116  014160  016237  000020  001126        MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADD REG
3117  014166  001406                        BEQ     12$                     ;CHECK IF ZERO
3118  014170  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3119  014174  012737  067624  001322        MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
3120  014202  104003                        ERROR   3
3121  014204                          12$:
3122  014204  016237  000026  001126        MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG.1
3123  014212  012737  002000  001124        MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
3124  014220  032737  020000  001126        BIT     #ECCW,$BDDAT
3125  014226  001403                        BEQ     13$
3126  014230  052737  020000  001124        BIS     #ECCW,$GDDAT
3127  014236  023737  001124  001126  13$:  CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
3128  014244  001404                        BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
3129  014246  012737  067651  001322        MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
3130  014254  104003                        ERROR   3
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3131  014256                          14$:
3132  014256  016237  000032  001126        MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3133  014264  001406                        BEQ     15$               ;CHECK IF ZERO
3134  014266  005037  001124              CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3135  014272  012737  067727  001322        MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
3136  014300  104003                        ERROR   3
3137  014302  016237  000030  001126  15$:  MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
3138  014310  032737  010000  002010        BIT     #CFMT,CONFIG      ;CHECK IF IN 18 BIT FORMAT
3139  014316  001404                        BEQ     16$               ;NO, USE 4066
3140  014320  012737  005066  001124        MOV     #5066,$GDDAT      ;USE 5066
3141  014326  000403                        BR      17$     ;CHECK IF POSITION CORRECT
3142
3143  014330  012737  004066  001124  16$:  MOV     #4066,$GDDAT      ;USE 4066
3144  014336  023737  001124  001126  17$:  CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
3145  014344  001404                        BEQ     18$               ;YES,INITIALIZE RK611
3146  014346  012737  067702  001322        MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
3147  014354  104003                        ERROR   3
3148  014356  016237  000000  002014  18$:  MOV     RKCS1(R2),PREREG          ;GET PREVIOUS CONTENTS
3149  014364  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
3150  014372  016237  000000  001126        MOV     RKCS1(R2),$BDDAT          ;GET CURRENT VALUE
3151  014400  012737  000200  001124        MOV     #RDY,$GDDAT       ;LOAD EXPECTED CONTENTS
3152  014406  023737  001124  001126        CMP     $GDDAT,$BDDAT     ;CHECK IF RKCS1 CORRECT
3153  014414  001407                        BEQ     19$               ;YES, CHECK IF FINISHED
3154  014416  012737  063403  001330        MOV     #EM3,EM4N         ;LOAD ERROR MESSAGE
3155  014424  012737  066574  001332        MOV     #EM1000,EM4N+2
3156  014432  104004                        ERROR   4
3157  014434  104415                  19$:  SCOPE                     ;CHECK IF LOOP ON ERROR
3158  014436  000261                        SEC                       ;SHIFT IN ONE
3159  014440  006137  002012              ROL     CONFG1
3160  014444  013737  002012  002010        MOV     CONFG1,CONFIG   ;MAKE SURE CONTROLLER CLEAR AMP
3161  014452  042737  100001  002010        BIC     #CCLR!GO,CONFIG ;   GO DO NOT SET
3162  014460  005301                        DEC     R1                ;CHECK IF FINISHED
3163  014462  001402                        BEQ     TST17             ;;YES, GO ON TO NEXT TEST
3164  014464  000137  013652                JMP     1$
3165
3166                                ;;*****************************************************************
3167                                ;*TEST 17       REGISTER INTERACTION USING COMMAND STATUS REG.1 (PART 4)
3168                                ;*
3169                                ;*      THIS TEST WILL INITIALIZE BY ISSUING A CONTROLLER CLEAR AND
3170                                ;*      BY WRITING THE WORD COUNT TO ZERO.
3171                                ;*
3172                                ;*      THE TEST ITSELF WILL CONSIST OF WRITING COMMAND
3173                                ;*      AND STATUS REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS
3174                                ;*      SUCH THAT GO AND CONTROLLER CLEAR ARE RESET. IT WILL
3175                                ;*      THEN CHECK FOR CORRECT REGISTER LOADING AND THAT NO
3176                                ;*      REGISTER INTERACTION TAKES PLACE.
3177                                ;*
3178                                ;*      000000  074000  077600  077770
3179                                ;*      040000  076000  077700  077774
3180                                ;*      060000  077000  077740  077776
3181                                ;*      070000  077400  077760
3182                                ;*
3183                                ;*****************************************************************
3184  014470  000004                TST17:  SCOPE
3185  014472  012737  000144  001200        MOV     #100.,$TIMES      ;;DO 100. ITERATIONS
3186  014500  012701  000021               MOV     #17.,R1           ;LOAD NUMBER OF PATTERNS
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3187  014504  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
3188  014510  005037  002012                  CLR     CONFG1
3189  014514  012737  064321  001320          MOV     #EM16,EM3N      ;LOAD ERROR MESSAGE
3190  014522  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
3191  014530  012737  014536  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
3192                                                                  ;  SUBTEST LOOP
3193
3194  014536                          1$:
3195  014536  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
3196  014542  013762  002010  000000          MOV     CONFIG,RKCS1(R2)        ;WRITE RKCS1
3197  014550  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;STORE RKCS1
3198  014556  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
3199  014564  042737  064000  001124          BIC     #DI!SPAR!CTO,$GDDAT ;INITIALIZE READ ONLY BITS
3200  014572  052737  000200  001124          BIS     #RDY,$GDDAT
3201  014600  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
3202  014606  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
3203  014610  012737  066574  001322          MOV     #EM1000,EM3N+2  ;LOAD ERROR MESSAGE
3204  014616  104003                          ERROR   3
3205  014620                          2$:
3206  014620  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
3207  014626  001406                          BEQ     4$              ;CHECK IF ZERO
3208  014630  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3209  014634  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
3210  014642  104003                          ERROR   3
3211  014644                          4$:
3212  014644  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
3213  014652  001406                          BEQ     5$              ;CHECK IF ZERO
3214  014654  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3215  014660  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
3216  014666  104003                          ERROR   3
3217  014670                          5$:
3218  014670  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
3219  014676  001406                          BEQ     6$              ;CHECK IF ZERO
3220  014700  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3221  014704  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
3222  014712  104003                          ERROR   3
3223  014714                          6$:
3224  014714  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
3225  014722  001406                          BEQ     7$              ;CHECK IF ZERO
3226  014724  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3227  014730  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
3228  014736  104003                          ERROR   3
3229  014740                          7$:
3230  014740  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
3231  014746  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
3232  014754  001407                          BEQ     8$              ;YES,CONTINUE
3233  014756  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
3234  014764  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
3235  014772  104003                          ERROR   3
3236  014774                          8$:
3237  014774  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
3238  015002  001406                          BEQ     9$              ;CHECK IF ZERO
3239  015004  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3240  015010  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
3241  015016  104003                          ERROR   3
3242  015020  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
```

```
3243  015026  001406                          BEQ     10$                     ;CHECK IF ZERO
3244  015030  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3245  015034  012737  067527  001322          MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
3246  015042  104003                          ERROR   3
3247  015044                          10$:
3248  015044  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
3249  015052  001406                          BEQ     12$                     ;CHECK IF ZERO
3250  015054  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3251  015060  012737  067624  001322          MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
3252  015066  104003                          ERROR   3
3253  015070                          12$:
3254  015070  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
3255  015076  012737  002000  001124          MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
3256  015104  032737  020000  001126          BIT     #ECCW,$BDDAT
3257  015112  001403                          BEQ     13$
3258  015114  052737  020000  001124          BIS     #ECCW,$GDDAT
3259  015122  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
3260  015130  001404                          BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
3261  015132  012737  067651  001322          MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
3262  015140  104003                          ERROR   3
3263  015142                          14$:
3264  015142  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3265  015150  001406                          BEQ     15$                     ;CHECK IF ZERO
3266  015152  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3267  015156  012737  067727  001322          MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
3268  015164  104003                          ERROR   3
3269  015166  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
3270  015174  032737  010000  002010          BIT     #CFMT,CONFIG            ;CHECK IF IN 18 BIT FORMAT
3271  015202  001404                          BEQ     16$                     ;NO, USE 4066
3272  015204  012737  005066  001124          MOV     #5066,$GDDAT            ;USE 5066
3273  015212  000403                          BR      17$     ;CHECK IF POSITION CORRECT
3274
3275  015214  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
3276  015222  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
3277  015230  001404                          BEQ     18$             ;YES,INITIALIZE RK611
3278  015232  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
3279  015240  104003                          ERROR   3
3280  015242  016237  000000  002014  18$:    MOV     RKCS1(R2),PREREG        ;GET PREVIOUS CONTENTS
3281  015250  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
3282  015256  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;GET CURRENT VALUE
3283  015264  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
3284  015272  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS1 CORRECT
3285  015300  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
3286  015302  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
3287  015310  012737  066574  001332          MOV     #EM1000,EM4N+2
3288  015316  104004                          ERROR   4
3289  015320  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
3290  015322  000261                          SEC                     ;SHIFT IN ONE
3291  015324  006037  002012                  ROR     CONFG1
3292  015330  013737  002012  002010          MOV     CONFG1,CONFIG   ;MAKE SURE CONTROLLER CLEAR AMP
3293  015336  042737  100001  002010          BIC     #CCLR!GO,CONFIG ;   GO DO NOT SET
3294  015344  005301                          DEC     R1              ;CHECK IF FINISHED
3295  015346  001402                          BEQ     TST20           ;;YES, GO ON TO NEXT TEST
3296  015350  000137  014536                  JMP     1$
3297
3298                          ;;*****************************************************************
```

```
                                        ;*TEST 20       REGISTER INTERACTION USING SPARE REG
                                        ;*
                                        ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTERS.
                                        ;*      WRITE THE WORD COUNT REGISTER WITH 0.
                                        ;*
                                        ;*      WRITE THE SPARE REGISTER WITH 177777 AND MAKE SURE
                                        ;*      NO INTERACTION TAKES PLACE.
                                        ;*
                                        ;**********************************************************************
015354  000004                  TST20:  SCOPE
015356  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
015364  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
015370  012737  177777  002010          MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
015376  012737  063757  001320          MOV     #EM9,EM3N       ;LOAD ERROR MESSAGE
015404  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
015412  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
015416  012762  177777  000022          MOV     #177777,RKSPAR(R2) ;WRITE RKSPAR WITH 177777
015424  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
015432  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
015440  001407                          BEQ     1$              ;YES,CONTINUE
015442  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
015450  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
015456  104003                          ERROR   3
015460  016237  000004  001126  1$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
015466  001406                          BEQ     2$              ;CHECK IF ZERO
015470  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
015474  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
015502  104003                          ERROR   3
015504  016237  000002  001126  2$:     MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
015512  001406                          BEQ     3$              ;CHECK IF ZERO
015514  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
015520  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
015526  104003                          ERROR   3
015530  016237  000006  001126  3$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
015536  001406                          BEQ     4$              ;CHECK IF ZERO
015540  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
015544  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
015552  104003                          ERROR   3
015554  016237  000016  001126  4$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
015562  001406                          BEQ     5$              ;CHECK IF ZERO
015564  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
015570  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
015576  104003                          ERROR   3
015600  016237  000010  001126  5$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
015606  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
015614  001407                          BEQ     6$              ;YES,CONTINUE
015616  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
015624  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
015632  104003                          ERROR   3
015634  016237  000012  001126  6$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
015642  001406                          BEQ     7$              ;CHECK IF ZERO
015644  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
015650  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
015656  104003                          ERROR   3
015660  016237  000014  001126  7$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
015666  001406                          BEQ     8$              ;CHECK IF ZERO
```

```
3355  015670  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3356  015674  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
3357  015702  104003                          ERROR   3
3358  015704  016237  000020  001126  8$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
3359  015712  001406                          BEQ     10$             ;CHECK IF ZERO
3360  015714  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
3361  015720  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
3362  015726  104003                          ERROR   3
3363  015730  016237  000026  001126  10$:    MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
3364  015736  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
3365  015744  032737  020000  001126          BIT     #ECCW,$BDDAT
3366  015752  001403                          BEQ     11$
3367  015754  052737  020000  001124          BIS     #ECCW,$GDDAT
3368  015762  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
3369  015770  001404                          BEQ     12$             ;YES,CONTINUE TEST
3370  015772  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
3371  016000  104003                          ERROR   3
3372  016002  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3373  016010  001406                          BEQ     13$             ;CHECK IF ZERO
3374  016012  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3375  016016  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
3376  016024  104003                          ERROR   3
3377  016026  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
3378  016034  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
3379  016042  001407                          BEQ     TST21           ;;YES,GO TO NEXT TEST
3380  016044  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
3381  016052  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
3382  016060  104003                          ERROR   3
3383
3384                                  ;;*****************************************************************
3385                                  ;*TEST 21       REGISTER INTERACTION USING WORD COUNT (PART 1)
3386                                  ;*
3387                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTERS.
3388                                  ;*      WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGURATIONS
3389                                  ;*      AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
3390                                  ;*      PLACE.
3391                                  ;*
3392                                  ;*      000000  000010  000200  004000  100000
3393                                  ;*      000001  000020  000400  010000
3394                                  ;*      000002  000040  001000  020000
3395                                  ;*      000004  000100  002000  040000
3396                                  ;*
3397                                  ;*****************************************************************
3398  016062  000004          TST21:  SCOPE
3399  016064  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
3400  016072  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
3401  016076  012737  000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
3402  016104  012737  063663  001320          MOV     #EM7,EM3N       ;LOAD ERROR MESSAGE
3403  016112  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
3404  016120  012737  016126  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
3405
3406
3407  016126                          1$:
3408  016126  013762  002010  000002          MOV     CONFIG,RKWC(R2) ;WRITE RKWC
3409  016134  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE RKWC
3410  016142  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
```

```
 3411  016150  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKWC CORRECT
 3412  016156  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
 3413  016160  012737  066612  001322          MOV     #EM1001,EM3N+2  ;LOAD ERROR MESSAGE
 3414  016166  104003                          ERROR   3
 3415  016170                          2$:
 3416  016170  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
 3417  016176  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
 3418  016204  001407                          BEQ     3$              ;YES, CONTINUE
 3419  016206  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
 3420  016214  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 3421  016222  104003                          ERROR   3
 3422  016224                          3$:
 3423  016224  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
 3424  016232  001406                          BEQ     4$              ;CHECK IF ZERO
 3425  016234  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3426  016240  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 3427  016246  104003                          ERROR   3
 3428  016250                          4$:
 3429  016250  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
 3430  016256  001406                          BEQ     6$              ;CHECK IF ZERO
 3431  016260  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3432  016264  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 3433  016272  104003                          ERROR   3
 3434  016274                          6$:
 3435  016274  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 3436  016302  001406                          BEQ     7$              ;CHECK IF ZERO
 3437  016304  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3438  016310  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 3439  016316  104003                          ERROR   3
 3440  016320                          7$:
 3441  016320  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 3442  016326  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
 3443  016334  001407                          BEQ     8$              ;YES,CONTINUE
 3444  016336  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
 3445  016344  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
 3446  016352  104003                          ERROR   3
 3447  016354                          8$:
 3448  016354  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 3449  016362  001406                          BEQ     9$              ;CHECK IF ZERO
 3450  016364  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3451  016370  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 3452  016376  104003                          ERROR   3
 3453  016400  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 3454  016406  001406                          BEQ     10$             ;CHECK IF ZERO
 3455  016410  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3456  016414  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 3457  016422  104003                          ERROR   3
 3458  016424                          10$:
 3459  016424  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 3460  016432  001406                          BEQ     12$             ;CHECK IF ZERO
 3461  016434  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3462  016440  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 3463  016446  104003                          ERROR   3
 3464  016450                          12$:
 3465  016450  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 3466  016456  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
```

```
3467  016464  032737  020000  001126          BIT     #ECCW,$BDDAT
3468  016472  001403                          BEQ     13$
3469  016474  052737  020000  001124          BIS     #ECCW,$GDDAT
3470  016502  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
3471  016510  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
3472  016512  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
3473  016520  104003                          ERROR   3
3474  016522                          14$:
3475  016522  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3476  016530  001406                          BEQ     15$             ;CHECK IF ZERO
3477  016532  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3478  016536  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
3479  016544  104003                          ERROR   3
3480  016546  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
3481  016554  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
3482  016562  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
3483  016570  001404                          BEQ     18$             ;YES,INITIALIZE RK611
3484  016572  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
3485  016600  104003                          ERROR   3
3486  016602  016237  000002  002014  18$:    MOV     RKWC(R2),PREREG ;GET PREVIOUS CONTENTS
3487  016610  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
3488  016616  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;GET CURRENT VALUE
3489  016624  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK IF WORD COUNT NOT CHANGE
3490                                                                  ;  BY CONTROLLER CLEAR
3491  016632  001412                          BEQ     19$             ;YES, CHECK IF FINISHED
3492  016634  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED DATA
3493  016642  012737  063403  001310          MOV     #EM3,EM2N       ;LOAD ERROR MESSAGE
3494  016650  012737  067335  001312          MOV     #EM1018,EM2N+2
3495  016656  104002                          ERROR   2
3496  016660  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
3497  016662  000241                          CLC                     ;SHIFT IN ZERO
3498  016664  006137  002010                  ROL     CONFIG
3499  016670  005301                          DEC     R1              ;CHECK IF FINISHED
3500  016672  001402                          BEQ     TST22           ;;YES, GO ON TO NEXT TEST
3501  016674  000137  016126                  JMP     1$
3502
3503                          ;;*****************************************************************
3504                          ;*TEST 22       REGISTER INTERACTION USING WORD COUNT (PART 2)
3505                          ;*
3506                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTERS.
3507                          ;*      WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGURATIONS
3508                          ;*      AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
3509                          ;*      PLACE.
3510                          ;*
3511                          ;*      177777  177767  177577  173777  077777
3512                          ;*      177776  177757  177377  167777
3513                          ;*      177775  177737  176777  157777
3514                          ;*      177773  177677  175777  137777
3515                          ;*
3516                          ;*****************************************************************
3517  016700  000004          TST22:  SCOPE
3518  016702  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
3519  016710  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
3520  016714  012737  177776  002010          MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
3521  016722  012737  063663  001320          MOV     #EM7,EM3N       ;LOAD ERROR MESSAGE
3522  016730  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
```

```
3523  016736  012737  016744  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
3524                                                                  ;  SUBTEST LOOP
3525
3526  016744                          1$:
3527  016744  013762  002010  000002          MOV     CONFIG,RKWC(R2) ;WRITE RKWC
3528  016752  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE RKWC
3529  016760  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
3530  016766  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKWC CORRECT
3531  016774  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
3532  016776  012737  066612  001322          MOV     #EM1001,EM3N+2  ;LOAD ERROR MESSAGE
3533  017004  104003                          ERROR   3
3534  017006                          2$:
3535  017006  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
3536  017014  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
3537  017022  001407                          BEQ     3$              ;YES, CONTINUE
3538  017024  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
3539  017032  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
3540  017040  104003                          ERROR   3
3541  017042                          3$:
3542  017042  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
3543  017050  001406                          BEQ     4$              ;CHECK IF ZERO
3544  017052  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3545  017056  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
3546  017064  104003                          ERROR   3
3547  017066                          4$:
3548  017066  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
3549  017074  001406                          BEQ     6$              ;CHECK IF ZERO
3550  017076  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3551  017102  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
3552  017110  104003                          ERROR   3
3553  017112                          6$:
3554  017112  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
3555  017120  001406                          BEQ     7$              ;CHECK IF ZERO
3556  017122  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3557  017126  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
3558  017134  104003                          ERROR   3
3559  017136                          7$:
3560  017136  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
3561  017144  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
3562  017152  001407                          BEQ     8$              ;YES,CONTINUE
3563  017154  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
3564  017162  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
3565  017170  104003                          ERROR   3
3566  017172                          8$:
3567  017172  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
3568  017200  001406                          BEQ     9$              ;CHECK IF ZERO
3569  017202  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3570  017206  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
3571  017214  104003                          ERROR   3
3572  017216  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
3573  017224  001406                          BEQ     10$             ;CHECK IF ZERO
3574  017226  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3575  017232  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
3576  017240  104003                          ERROR   3
3577  017242                          10$:
3578  017242  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
```

```
3579  017250  001406                        BEQ     12$                     ;CHECK IF ZERO
3580  017252  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3581  017256  012737  067624  001322        MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
3582  017264  104003                        ERROR   3
3583  017266                          12$:
3584  017266  016237  000026  001126        MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG.1
3585  017274  012737  002000  001124        MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
3586  017302  032737  020000  001126        BIT     #ECCW,$BDDAT
3587  017310  001403                        BEQ     13$
3588  017312  052737  020000  001124        BIS     #ECCW,$GDDAT
3589  017320  023737  001124  001126  13$:  CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
3590  017326  001404                        BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
3591  017330  012737  067651  001322        MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
3592  017336  104003                        ERROR   3
3593  017340                          14$:
3594  017340  016237  000032  001126        MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
3595  017346  001406                        BEQ     15$                     ;CHECK IF ZERO
3596  017350  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
3597  017354  012737  067727  001322        MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
3598  017362  104003                        ERROR   3
3599  017364  016237  000030  001126  15$:  MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
3600  017372  012737  004066  001124  16$:  MOV     #4066,$GDDAT            ;USE 4066
3601  017400  023737  001124  001126  17$:  CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
3602  017406  001404                        BEQ     18$                     ;YES,INITIALIZE RK611
3603  017410  012737  067702  001322        MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
3604  017416  104003                        ERROR   3
3605  017420  016237  000002  002014  18$:  MOV     RKWC(R2),PREREG         ;GET PREVIOUS CONTENTS
3606  017426  012762  100000  000000        MOV     #CCLR,RKCS1(R2)         ;CLEAR RK611 CONTROLLER
3607  017434  016237  000002  001126        MOV     RKWC(R2),$BDDAT         ;GET CURRENT VALUE
3608  017442  023737  002010  001126        CMP     CONFIG,$BDDAT           ;CHECK IF WORD COUNT NOT CHANGE
3609                                                                        ;  BY CONTROLLER CLEAR
3610  017450  001412                        BEQ     19$                     ;YES, CHECK IF FINISHED
3611  017452  013737  002010  001124        MOV     CONFIG,$GDDAT           ;LOAD EXPECTED DATA
3612  017460  012737  063403  001310        MOV     #EM3,EM2N               ;LOAD ERROR MESSAGE
3613  017466  012737  067335  001312        MOV     #EM1018,EM2N+2
3614  017474  104002                        ERROR   2
3615  017476  104415                  19$:  SCOP1                           ;CHECK IF LOOP ON ERROR
3616  017500  000261                        SEC                             ;SHIFT IN ONE
3617  017502  006137  002010                ROL     CONFIG
3618  017506  005301                        DEC     R1                      ;CHECK IF FINISHED
3619  017510  001402                        BEQ     TST23                   ;;YES, GO ON TO NEXT TEST
3620  017512  000137  016744                JMP     1$
3621
3622                          ;;*****************************************************************
3623                          ;*TEST 23       REGISTER INTERACTION USING WORD COUNT (PART 3)
3624                          ;*
3625                          ;*       ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTERS.
3626                          ;*       WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGURATIONS
3627                          ;*       AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
3628                          ;*       PLACE.
3629                          ;*
3630                          ;*       000001  000037  000777  017777  000000
3631                          ;*       000003  000077  001777  037777
3632                          ;*       000007  000177  003777  077777
3633                          ;*       000017  000377  007777  177777
3634                          ;*
```

```
                                ;;*****************************************************************
                        TST23:  SCOPE
017516  000004
017520  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
017526  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
017532  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
017536  012737  063663  001320          MOV     #EM7,EM3N       ;LOAD ERROR MESSAGE
017544  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
017552  012737  017560  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
                        1$:
017560  013762  002010  000002          MOV     CONFIG,RKWC(R2) ;WRITE RKWC
017566  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE RKWC
017574  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
017602  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKWC CORRECT
017610  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
017612  012737  066612  001322          MOV     #EM1001,EM3N+2  ;LOAD ERROR MESSAGE
017620  104003                          ERROR   3
                        2$:
017622  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
017630  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
017636  001407                          BEQ     3$              ;YES, CONTINUE
017640  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
017646  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
017654  104003                          ERROR   3
                        3$:
017656  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
017664  001406                          BEQ     4$              ;CHECK IF ZERO
017666  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
017672  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
017700  104003                          ERROR   3
                        4$:
017702  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
017710  001406                          BEQ     6$              ;CHECK IF ZERO
017712  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
017716  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
017724  104003                          ERROR   3
                        6$:
017726  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
017734  001406                          BEQ     7$              ;CHECK IF ZERO
017736  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
017742  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
017750  104003                          ERROR   3
                        7$:
017752  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
017760  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
017766  001407                          BEQ     8$              ;YES,CONTINUE
017770  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
017776  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
020004  104003                          ERROR   3
                        8$:
020006  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
020014  001406                          BEQ     9$              ;CHECK IF ZERO
020016  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
020022  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
020030  104003                          ERROR   3
```

```
3691  020032  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
3692  020040  001406                          BEQ     10$             ;CHECK IF ZERO
3693  020042  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3694  020046  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
3695  020054  104003                          ERROR   3
3696  020056                          10$:
3697  020056  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
3698  020064  001406                          BEQ     12$             ;CHECK IF ZERO
3699  020066  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3700  020072  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
3701  020100  104003                          ERROR   3
3702  020102                          12$:
3703  020102  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
3704  020110  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
3705  020116  032737  020000  001126          BIT     #ECCW,$BDDAT
3706  020124  001403                          BEQ     13$
3707  020126  052737  020000  001124          BIS     #ECCW,$GDDAT
3708  020134  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
3709  020142  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
3710  020144  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
3711  020152  104003                          ERROR   3
3712  020154                          14$:
3713  020154  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3714  020162  001406                          BEQ     15$             ;CHECK IF ZERO
3715  020164  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
3716  020170  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
3717  020176  104003                          ERROR   3
3718  020200  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
3719  020206  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
3720  020214  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
3721  020222  001404                          BEQ     18$             ;YES,INITIALIZE RK611
3722  020224  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
3723  020232  104003                          ERROR   3
3724  020234  016237  000002  002014  18$:    MOV     RKWC(R2),PREREG ;GET PREVIOUS CONTENTS
3725  020242  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
3726  020250  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;GET CURRENT VALUE
3727  020256  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK IF WORD COUNT NOT CHANGE
3728                                                                  ;  BY CONTROLLER CLEAR
3729  020264  001412                          BEQ     19$             ;YES, CHECK IF FINISHED
3730  020266  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED DATA
3731  020274  012737  063403  001310          MOV     #EM3,EM2N       ;LOAD ERROR MESSAGE
3732  020302  012737  067335  001312          MOV     #EM1018,EM2N+2
3733  020310  104002                          ERROR   2
3734  020312  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
3735  020314  000261                          SEC                     ;SHIFT IN ONE
3736  020316  006137  002010                  ROL     CONFIG
3737  020322  005301                          DEC     R1              ;CHECK IF FINISHED
3738  020324  001402                          BEQ     TST24           ;;YES, GO ON TO NEXT TEST
3739  020326  000137  017560                  JMP     1$
3740
3741                          ;;*****************************************************************
3742                          ;*TEST 24       REGISTER INTERACTION USING WORD COUNT (PART 4)
3743                          ;*
3744                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE ALL RK611 REGISTERS.
3745                          ;*      WRITE THE WORD COUNT REGISTER WITH THE FOLLOWING CONFIGURATIONS
3746                          ;*      AND CHECK IF CORRECT AND NO REGISTER INTERACTION TAKE
```

```
                                        ;*      PLACE.
                                        ;*
                                        ;*      100000  174000  177600  177770  000000
                                        ;*      140000  176000  177700  177774
                                        ;*      160000  177000  177740  177776
                                        ;*      170000  177400  177760  177777
                                        ;*
                                        ;;*****************************************************************
020332  000004                        TST24:  SCOPE
020334  012737  000764  001200                MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
020342  012701  000021                        MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
020346  005037  002010                        CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
020352  012737  063663  001320                MOV     #EM7,EM3N       ;LOAD ERROR MESSAGE
020360  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
020366  012737  020374  001110                MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
020374                                  1$:
020374  013762  002010  000002                MOV     CONFIG,RKWC(R2) ;WRITE RKWC
020402  016237  000002  001126                MOV     RKWC(R2),$BDDAT ;STORE RKWC
020410  013737  002010  001124                MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
020416  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;CHECK IF RKWC CORRECT
020424  001404                              BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
020426  012737  066612  001322                MOV     #EM1001,EM3N+2  ;LOAD ERROR MESSAGE
020434  104003                              ERROR   3
020436                                  2$:
020436  016237  000000  001126                MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
020444  022737  000200  001126                CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
020452  001407                              BEQ     3$              ;YES, CONTINUE
020454  012737  000100  001124                MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
020462  012737  067314  001322                MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
020470  104003                              ERROR   3
020472                                  3$:
020472  016237  000004  001126                MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
020500  001406                              BEQ     4$              ;CHECK IF ZERO
020502  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
020506  012737  067365  001322                MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
020514  104003                              ERROR   3
020516                                  4$:
020516  016237  000006  001126                MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
020524  001406                              BEQ     6$              ;CHECK IF ZERO
020526  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
020532  012737  067412  001322                MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
020540  104003                              ERROR   3
020542                                  6$:
020542  016237  000016  001126                MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
020550  001406                              BEQ     7$              ;CHECK IF ZERO
020552  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
020556  012737  067556  001322                MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
020564  104003                              ERROR   3
020566                                  7$:
020566  016237  000010  001126                MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
020574  022737  000100  001126                CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
020602  001407                              BEQ     8$              ;YES,CONTINUE
020604  012737  000100  001124                MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
020612  012737  067450  001322                MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
```

```
 3803  020620  104003                          ERROR   3
 3804  020622                          8$:
 3805  020622  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 3806  020630  001406                          BEQ     9$              ;CHECK IF ZERO
 3807  020632  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3808  020636  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 3809  020644  104003                          ERROR   3
 3810  020646  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 3811  020654  001406                          BEQ     10$             ;CHECK IF ZERO
 3812  020656  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3813  020662  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 3814  020670  104003                          ERROR   3
 3815  020672                          10$:
 3816  020672  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 3817  020700  001406                          BEQ     12$             ;CHECK IF ZERO
 3818  020702  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3819  020706  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 3820  020714  104003                          ERROR   3
 3821  020716                          12$:
 3822  020716  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 3823  020724  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 3824  020732  032737  020000  001126          BIT     #ECCW,$BDDAT
 3825  020740  001403                          BEQ     13$
 3826  020742  052737  020000  001124          BIS     #ECCW,$GDDAT
 3827  020750  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 3828  020756  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
 3829  020760  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 3830  020766  104003                          ERROR   3
 3831  020770                          14$:
 3832  020770  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 3833  020776  001406                          BEQ     15$             ;CHECK IF ZERO
 3834  021000  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 3835  021004  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 3836  021012  104003                          ERROR   3
 3837  021014  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
 3838  021022  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
 3839  021030  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
 3840  021036  001404                          BEQ     18$             ;YES,INITIALIZE RK611
 3841  021040  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 3842  021046  104003                          ERROR   3
 3843  021050  016237  000002  002014  18$:    MOV     RKWC(R2),PREREG ;GET PREVIOUS CONTENTS
 3844  021056  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
 3845  021064  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;GET CURRENT VALUE
 3846  021072  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK IF WORD COUNT NOT CHANGE
 3847                                                                  ;  BY CONTROLLER CLEAR
 3848  021100  001412                          BEQ     19$             ;YES, CHECK IF FINISHED
 3849  021102  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED DATA
 3850  021110  012737  063403  001310          MOV     #EM3,EM2N       ;LOAD ERROR MESSAGE
 3851  021116  012737  067335  001312          MOV     #EM1018,EM2N+2
 3852  021124  104002                          ERROR   2
 3853  021126  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 3854  021130  000261                          SEC                     ;SHIFT IN ONE
 3855  021132  006037  002010                  ROR     CONFIG
 3856  021136  005301                          DEC     R1              ;CHECK IF FINISHED
 3857  021140  001402                          BEQ     TST25           ;;YES, GO ON TO NEXT TEST
 3858  021142  000137  020374                  JMP     1$
```

```
                                ;;*****************************************************************
                                ;*TEST 25       REGISTER INTERACTION USING DISK ADDRESS (PART 1)
                                ;*
                                ;*       ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
                                ;*       WRITE THE WORD COUNT REGISTER,WITH 0.
                                ;*
                                ;*       WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
                                ;*       THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AND MAKE
                                ;*       SURE NO INTERACTION TAKES PLACE.
                                ;*
                                ;*       000000  000010  000200  004000  100000
                                ;*       000001  000020  000400  010000
                                ;*       000002  000040  001000  020000
                                ;*       000004  000100  002000  040000
                                ;*
                                ;*****************************************************************
021146  000004                  TST25:  SCOPE
021150  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
021156  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
021162  012737  000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
021170  012737  063722  001320          MOV     #EM8,EM3N       ;LOAD ERROR MESSAGE
021176  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
021204  012737  021212  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
021212                          1$:
021212  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
021216  013762  002010  000006          MOV     CONFIG,RKDA(R2) ;WRITE RKDA
021224  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE RKDA
021232  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
021240  042737  174340  001124          BIC     #174340,$GDDAT  ;INITIALIZE READ ONLY BITS
021246  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDA CORRECT
021254  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
021256  012737  066661  001322          MOV     #EM1003,EM3N+2  ;LOAD ERROR MESSAGE
021264  104003                          ERROR   3
021266                          2$:
021266  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
021274  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
021302  001407                          BEQ     3$              ;YES, CONTINUE
021304  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
021312  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
021320  104003                          ERROR   3
021322                          3$:
021322  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
021330  001406                          BEQ     4$              ;CHECK IF ZERO
021332  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
021336  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
021344  104003                          ERROR   3
021346                          4$:
021346  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
021354  001406                          BEQ     5$              ;CHECK IF ZERO
021356  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
021362  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
021370  104003                          ERROR   3
021372                          5$:
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3915  021372  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
3916  021400  001406                          BEQ     7$                ;CHECK IF ZERO
3917  021402  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3918  021406  012737  067556  001322          MOV     #EM1024,EM3N+2    ;LOAD ERROR MESSAGE
3919  021414  104003                          ERROR   3
3920  021416                          7$:
3921  021416  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
3922  021424  022737  000100  001126          CMP     #IR,$BDDAT        ;CHECK IF CS2 CORRECT
3923  021432  001407                          BEQ     8$                ;YES,CONTINUE
3924  021434  012737  000100  001124          MOV     #IR,$GDDAT        ;LOAD EXPECTED CONTENTS
3925  021442  012737  067450  001322          MOV     #EM1021,EM3N+2    ;LOAD ERROR MESSAGE
3926  021450  104003                          ERROR   3
3927  021452                          8$:
3928  021452  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
3929  021460  001406                          BEQ     9$                ;CHECK IF ZERO
3930  021462  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3931  021466  012737  067471  001322          MOV     #EM1022,EM3N+2    ;LOAD ERROR MESSAGE
3932  021474  104003                          ERROR   3
3933  021476  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
3934  021504  001406                          BEQ     10$               ;CHECK IF ZERO
3935  021506  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3936  021512  012737  067527  001322          MOV     #EM1023,EM3N+2    ;LOAD ERROR MESSAGE
3937  021520  104003                          ERROR   3
3938  021522                          10$:
3939  021522  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
3940  021530  001406                          BEQ     12$               ;CHECK IF ZERO
3941  021532  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3942  021536  012737  067624  001322          MOV     #EM1025,EM3N+2    ;LOAD ERROR MESSAGE
3943  021544  104003                          ERROR   3
3944  021546                          12$:
3945  021546  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
3946  021554  012737  002000  001124          MOV     #MEWD,$GDDAT      ;LOAD EXPECTED MR1
3947  021562  032737  020000  001126          BIT     #ECCW,$BDDAT
3948  021570  001403                          BEQ     13$
3949  021572  052737  020000  001124          BIS     #ECCW,$GDDAT
3950  021600  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT     ;CHECK IF MR1 CORRECT
3951  021606  001404                          BEQ     14$               ;YES,ISSUE CONTROLLER CLEAR
3952  021610  012737  067651  001322          MOV     #EM1026,EM3N+2    ;LOAD ERROR MESSAGE
3953  021616  104003                          ERROR   3
3954  021620                          14$:
3955  021620  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
3956  021626  001406                          BEQ     15$               ;CHECK IF ZERO
3957  021630  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3958  021634  012737  067727  001322          MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
3959  021642  104003                          ERROR   3
3960  021644  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
3961  021652  012737  004066  001124  16$:    MOV     #4066,$GDDAT      ;USE 4066
3962  021660  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
3963  021666  001404                          BEQ     18$               ;YES,INITIALIZE RK611
3964  021670  012737  067702  001322          MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
3965  021676  104003                          ERROR   3
3966  021700  016237  000006  002014  18$:    MOV     RKDA(R2),PREREG ;GET PREVIOUS CONTENTS
3967  021706  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
3968  021714  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;GET CURRENT VALUE
3969  021722  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
3970  021726  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;CHECK IF RKDA CORRECT
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3971  021734  001407                        BEQ     19$                     ;YES, CHECK IF FINISHED
3972  021736  012737  063403  001330        MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
3973  021744  012737  066661  001332        MOV     #EM1003,EM4N+2
3974  021752  104004                        ERROR   4
3975  021754  104415              19$:      SCOP1                           ;CHECK IF LOOP ON ERROR
3976  021756  000241                        CLC                             ;SHIFT IN ZERO
3977  021760  006137  002010                ROL     CONFIG
3978  021764  005301                        DEC     R1                      ;CHECK IF FINISHED
3979  021766  001402                        BEQ     TST26                   ;;YES, GO ON TO NEXT TEST
3980  021770  000137  021212                JMP     1$
3981
3982                                ;;*****************************************************************
3983                                ;*TEST 26       REGISTER INTERACTION USING DISK ADDRESS (PART 2)
3984                                ;*
3985                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
3986                                ;*      WRITE THE WORD COUNT REGISTER WITH 0.
3987                                ;*
3988                                ;*      WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
3989                                ;*      THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AND MAKE
3990                                ;*      SURE NO INTERACTION TAKES PLACE.
3991                                ;*
3992                                ;*      177777  177767  177577  173777  077777
3993                                ;*      177776  177757  177377  167777
3994                                ;*      177775  177737  176777  157777
3995                                ;*      177773  177677  175777  137777
3996                                ;*
3997                                ;*****************************************************************
3998  021774  000004              TST26:  SCOPE
3999  021776  012737  000764  001200        MOV     #500.,$TIMES            ;;DO 500. ITERATIONS
4000  022004  012701  000021                MOV     #17.,R1                 ;LOAD NUMBER OF PATTERNS
4001  022010  012737  177776  002010        MOV     #177776,CONFIG          ;LOAD INITIAL CONFIGURATION
4002  022016  012737  063722  001320        MOV     #EM8,EM3N               ;LOAD ERROR MESSAGE
4003  022024  012762  100000  000000        MOV     #CCLR,RKCS1(R2)         ;CLEAR RK611 WITH CONTROLLER CLEAR
4004  022032  012737  022040  001110        MOV     #1$,$LPERR              ;LOAD LOOP ON ERROR LOCATION FOR
4005                                                                        ;  SUBTEST LOOP
4006
4007  022040                        1$:
4008  022040  005062  000002                CLR     RKWC(R2)                ;CLEAR WORD COUNT REG.
4009  022044  013762  002010  000006        MOV     CONFIG,RKDA(R2)         ;WRITE RKDA
4010  022052  016237  000006  001126        MOV     RKDA(R2),$BDDAT         ;STORE RKDA
4011  022060  013737  002010  001124        MOV     CONFIG,$GDDAT           ;PREPARE EXPECTED RESULTS
4012  022066  042737  174340  001124        BIC     #174340,$GDDAT          ;INITIALIZE READ ONLY BITS
4013  022074  023737  001124  001126        CMP     $GDDAT,$BDDAT           ;CHECK IF RKDA CORRECT
4014  022102  001404                        BEQ     2$                      ;YES,TEST IF ANY OTHER REG MODIFIED
4015  022104  012737  066661  001322        MOV     #EM1003,EM3N+2          ;LOAD ERROR MESSAGE
4016  022112  104003                        ERROR   3
4017  022114                        2$:
4018  022114  016237  000000  001126        MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG. 1
4019  022122  022737  000200  001126        CMP     #RDY,$BDDAT             ;CHECK IF CS1 CORRECT
4020  022130  001407                        BEQ     3$                      ;YES, CONTINUE
4021  022132  012737  000100  001124        MOV     #IR,$GDDAT              ;LOAD EXPECTED RESULTS
4022  022140  012737  067314  001322        MOV     #EM1017,EM3N+2          ;LOAD ERROR MESSAGE
4023  022146  104003                        ERROR   3
4024  022150                        3$:
4025  022150  016237  000004  001126        MOV     RKBA(R2),$BDDAT         ;STORE BUS AND REG
4026  022156  001406                        BEQ     4$                      ;CHECK IF ZERO
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4027  022160  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4028  022164  012737  067365  001322      MOV     #EM1019,EM3N+2      ;LOAD ERROR MESSAGE
4029  022172  104003                      ERROR   3
4030  022174                      4$:
4031  022174  016237  000002  001126      MOV     RKWC(R2),$BDDAT     ;STORE WORD COUNT REG
4032  022202  001406                      BEQ     5$                  ;CHECK IF ZERO
4033  022204  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4034  022210  012737  067335  001322      MOV     #EM1018,EM3N+2      ;LOAD ERROR MESSAGE
4035  022216  104003                      ERROR   3
4036  022220                      5$:
4037  022220  016237  000016  001126      MOV     RKASOF(R2),$BDDAT   ;STORE ATTENTION SUMMARY/OFFSET REG.
4038  022226  001406                      BEQ     7$                  ;CHECK IF ZERO
4039  022230  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4040  022234  012737  067556  001322      MOV     #EM1024,EM3N+2      ;LOAD ERROR MESSAGE
4041  022242  104003                      ERROR   3
4042  022244                      7$:
4043  022244  016237  000010  001126      MOV     RKCS2(R2),$BDDAT    ;STORE COMMAND AND STATUS REG.2
4044  022252  022737  000100  001126      CMP     #IR,$BDDAT          ;CHECK IF CS2 CORRECT
4045  022260  001407                      BEQ     8$                  ;YES,CONTINUE
4046  022262  012737  000100  001124      MOV     #IR,$GDDAT          ;LOAD EXPECTED CONTENTS
4047  022270  012737  067450  001322      MOV     #EM1021,EM3N+2      ;LOAD ERROR MESSAGE
4048  022276  104003                      ERROR   3
4049  022300                      8$:
4050  022300  016237  000012  001126      MOV     RKDS(R2),$BDDAT     ;STORE DRIVE STATUS REG
4051  022306  001406                      BEQ     9$                  ;CHECK IF ZERO
4052  022310  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4053  022314  012737  067471  001322      MOV     #EM1022,EM3N+2      ;LOAD ERROR MESSAGE
4054  022322  104003                      ERROR   3
4055  022324  016237  000014  001126  9$: MOV     RKER(R2),$BDDAT     ;STORE ERROR REG
4056  022332  001406                      BEQ     10$                 ;CHECK IF ZERO
4057  022334  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4058  022340  012737  067527  001322      MOV     #EM1023,EM3N+2      ;LOAD ERROR MESSAGE
4059  022346  104003                      ERROR   3
4060  022350                      10$:
4061  022350  016237  000020  001126      MOV     RKDCYL(R2),$BDDAT   ;STORE CYLINDER ADD REG
4062  022356  001406                      BEQ     12$                 ;CHECK IF ZERO
4063  022360  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4064  022364  012737  067624  001322      MOV     #EM1025,EM3N+2      ;LOAD ERROR MESSAGE
4065  022372  104003                      ERROR   3
4066  022374                      12$:
4067  022374  016237  000026  001126      MOV     RKMR1(R2),$BDDAT    ;STORE MAINTENANCE REG.1
4068  022402  012737  002000  001124      MOV     #MEWD,$GDDAT        ;LOAD EXPECTED MR1
4069  022410  032737  020000  001126      BIT     #ECCW,$BDDAT
4070  022416  001403                      BEQ     13$
4071  022420  052737  020000  001124      BIS     #ECCW,$GDDAT
4072  022426  023737  001124  001126  13$: CMP    $GDDAT,$BDDAT       ;CHECK IF MR1 CORRECT
4073  022434  001404                      BEQ     14$                 ;YES,ISSUE CONTROLLER CLEAR
4074  022436  012737  067651  001322      MOV     #EM1026,EM3N+2      ;LOAD ERROR MESSAGE
4075  022444  104003                      ERROR   3
4076  022446                      14$:
4077  022446  016237  000032  001126      MOV     RKECPT(R2),$BDDAT   ;STORE ECC PATTERN REG.
4078  022454  001406                      BEQ     15$                 ;CHECK IF ZERO
4079  022456  005037  001124              CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4080  022462  012737  067727  001322      MOV     #EM1030,EM3N+2      ;LOAD ERROR MESSAGE
4081  022470  104003                      ERROR   3
4082  022472  016237  000030  001126  15$: MOV     RKECPS(R2),$BDDAT   ;STORE ECC POSITION REG.
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4083  022500  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
4084  022506  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
4085  022514  001404                          BEQ     18$             ;YES, INITIALIZE RK611
4086  022516  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
4087  022524  104003                          ERROR   3
4088  022526  016237  000006  002014  18$:    MOV     RKDA(R2),PREREG ;GET PREVIOUS CONTENTS
4089  022534  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
4090  022542  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;GET CURRENT VALUE
4091  022550  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
4092  022554  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDA CORRECT
4093  022562  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
4094  022564  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
4095  022572  012737  066661  001332          MOV     #EM1003,EM4N+2
4096  022600  104004                          ERROR   4
4097  022602  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
4098  022604  000261                          SEC                     ;SHIFT IN ONE
4099  022606  006137  002010                  ROL     CONFIG
4100  022612  005301                          DEC     R1              ;CHECK IF FINISHED
4101  022614  001402                          BEQ     TST27           ;;YES, GO ON TO NEXT TEST
4102  022616  000137  022040                  JMP     1$
4103
4104                          ;;*****************************************************************
4105                          ;*TEST 27       REGISTER INTERACTION USING DISK ADDRESS (PART 3)
4106                          ;*
4107                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
4108                          ;*      WRITE THE WORD COUNT REGISTER WITH 0.
4109                          ;*
4110                          ;*      WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
4111                          ;*      THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AND MAKE
4112                          ;*      SURE NO INTERACTION TAKES PLACE.
4113                          ;*
4114                          ;*      000001  000037  000777  017777  000000
4115                          ;*      000003  000077  001777  037777
4116                          ;*      000007  000177  003777  077777
4117                          ;*      000017  000377  007777  177777
4118                          ;*
4119                          ;*****************************************************************
4120  022622  000004  TST27:  SCOPE
4121  022624  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
4122  022632  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
4123  022636  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
4124  022642  012737  063722  001320          MOV     #EM8,EM3N       ;LOAD ERROR MESSAGE
4125  022650  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
4126  022656  012737  022664  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4127                                                                  ;  SUBTEST LOOP
4128
4129  022664  1$:
4130  022664  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
4131  022670  013762  002010  000006          MOV     CONFIG,RKDA(R2) ;WRITE RKDA
4132  022676  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE RKDA
4133  022704  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
4134  022712  042737  174340  001124          BIC     #174340,$GDDAT  ;INITIALIZE READ ONLY BITS
4135  022720  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDA CORRECT
4136  022726  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
4137  022730  012737  066661  001322          MOV     #EM1003,EM3N+2  ;LOAD ERROR MESSAGE
4138  022736  104003                          ERROR   3
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 4139  022740                                  2$:
 4140  022740  016237  000000  001126                MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
 4141  022746  022737  000200  001126                CMP     #RDY,$BDDAT      ;CHECK IF CS1 CORRECT
 4142  022754  001407                                BEQ     3$               ;YES, CONTINUE
 4143  022756  012737  000100  001124                MOV     #IR,$GDDAT       ;LOAD EXPECTED RESULTS
 4144  022764  012737  067314  001322                MOV     #EM1017,EM3N+2   ;LOAD ERROR MESSAGE
 4145  022772  104003                                ERROR   3
 4146  022774                                  3$:
 4147  022774  016237  000004  001126                MOV     RKBA(R2),$BDDAT  ;STORE BUS AND REG
 4148  023002  001406                                BEQ     4$               ;CHECK IF ZERO
 4149  023004  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4150  023010  012737  067365  001322                MOV     #EM1019,EM3N+2   ;LOAD ERROR MESSAGE
 4151  023016  104003                                ERROR   3
 4152  023020                                  4$:
 4153  023020  016237  000002  001126                MOV     RKWC(R2),$BDDAT  ;STORE WORD COUNT REG
 4154  023026  001406                                BEQ     5$               ;CHECK IF ZERO
 4155  023030  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4156  023034  012737  067335  001322                MOV     #EM1018,EM3N+2   ;LOAD ERROR MESSAGE
 4157  023042  104003                                ERROR   3
 4158  023044                                  5$:
 4159  023044  016237  000016  001126                MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 4160  023052  001406                                BEQ     7$               ;CHECK IF ZERO
 4161  023054  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4162  023060  012737  067556  001322                MOV     #EM1024,EM3N+2   ;LOAD ERROR MESSAGE
 4163  023066  104003                                ERROR   3
 4164  023070                                 .7$:
 4165  023070  016237  000010  001126                MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 4166  023076  022737  000100  001126                CMP     #IR,$BDDAT       ;CHECK IF CS2 CORRECT
 4167  023104  001407                                BEQ     8$               ;YES,CONTINUE
 4168  023106  012737  000100  001124                MOV     #IR,$GDDAT       ;LOAD EXPECTED CONTENTS
 4169  023114  012737  067450  001322                MOV     #EM1021,EM3N+2   ;LOAD ERROR MESSAGE
 4170  023122  104003                                ERROR   3
 4171  023124                                  8$:
 4172  023124  016237  000012  001126                MOV     RKDS(R2),$BDDAT  ;STORE DRIVE STATUS REG
 4173  023132  001406                                BEQ     9$               ;CHECK IF ZERO
 4174  023134  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4175  023140  012737  067471  001322                MOV     #EM1022,EM3N+2   ;LOAD ERROR MESSAGE
 4176  023146  104003                                ERROR   3
 4177  023150  016237  000014  001126  9$:           MOV     RKER(R2),$BDDAT  ;STORE ERROR REG
 4178  023156  001406                                BEQ     10$              ;CHECK IF ZERO
 4179  023160  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4180  023164  012737  067527  001322                MOV     #EM1023,EM3N+2   ;LOAD ERROR MESSAGE
 4181  023172  104003                                ERROR   3
 4182  023174                                 10$:
 4183  023174  016237  000020  001126                MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 4184  023202  001406                                BEQ     12$              ;CHECK IF ZERO
 4185  023204  005037  001124                        CLR     $GDDAT           ;LOAD EXPECTED CONTENTS
 4186  023210  012737  067624  001322                MOV     #EM1025,EM3N+2   ;LOAD ERROR MESSAGE
 4187  023216  104003                                ERROR   3
 4188  023220                                 12$:
 4189  023220  016237  000026  001126                MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 4190  023226  012737  002000  001124                MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
 4191  023234  032737  020000  001126                BIT     #ECCW,$BDDAT
 4192  023242  001403                                BEQ     13$
 4193  023244  052737  020000  001124                BIS     #ECCW,$GDDAT
 4194  023252  023737  001124  001126  13$:          CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
```

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4195  023260  001404                          BEQ     14$                 ;YES,ISSUE CONTROLLER CLEAR
4196  023262  012737  067651  001322          MOV     #EM1026,EM3N+2      ;LOAD ERROR MESSAGE
4197  023270  104003                          ERROR   3
4198  023272                          14$:
4199  023272  016237  000032  001126          MOV     RKECPT(R2),$BDDAT   ;STORE ECC PATTERN REG.
4200  023300  001406                          BEQ     15$                 ;CHECK IF ZERO
4201  023302  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4202  023306  012737  067727  001322          MOV     #EM1030,EM3N+2      ;LOAD ERROR MESSAGE
4203  023314  104003                          ERROR   3
4204  023316  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT   ;STORE ECC POSITION REG.
4205  023324  012737  004066  001124  16$:    MOV     #4066,$GDDAT        ;USE 4066
4206  023332  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT       ;CHECK IF ECC POSITION CORRECT
4207  023340  001404                          BEQ     18$                 ;YES,INITIALIZE RK611
4208  023342  012737  067702  001322          MOV     #EM1029,EM3N+2      ;LOAD ERROR MESSAGE
4209  023350  104003                          ERROR   3
4210  023352  016237  000006  002014  18$:    MOV     RKDA(R2),PREREG     ;GET PREVIOUS CONTENTS
4211  023360  012762  100000  000000          MOV     #CCLR,RKCS1(R2)     ;CLEAR RK611 CONTROLLER
4212  023366  016237  000006  001126          MOV     RKDA(R2),$BDDAT     ;GET CURRENT VALUE
4213  023374  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4214  023400  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;CHECK IF RKDA CORRECT
4215  023406  001407                          BEQ     19$                 ;YES, CHECK IF FINISHED
4216  023410  012737  063403  001330          MOV     #EM3,EM4N           ;LOAD ERROR MESSAGE
4217  023416  012737  066661  001332          MOV     #EM1003,EM4N+2
4218  023424  104004                          ERROR   4
4219  023426  104415                  19$:    SCOPI                       ;CHECK IF LOOP ON ERROR
4220  023430  000261                          SEC                         ;SHIFT IN ONE
4221  023432  006137  002010                  ROL     CONFIG
4222  023436  005301                          DEC     R1                  ;CHECK IF FINISHED
4223  023440  001402                          BEQ     TST30               ;;YES, GO ON TO NEXT TEST
4224  023442  000137  022664                  JMP     1$
4225
4226                          ;;**********************************************************************
4227                          ;*TEST 30       REGISTER INTERACTION USING DISK ADDRESS (PART 4)
4228                          ;*
4229                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
4230                          ;*      WRITE THE WORD COUNT REGISTER WITH 0.
4231                          ;*
4232                          ;*      WRITE THE DISK ADDRESS REGISTER (SECTOR AND TRACK) WITH
4233                          ;*      THE FOLLOWING CONFIGURATIONS, CHECK REGISTER CONTENTS AND MAKE
4234                          ;*      SURE NO INTERACTION TAKES PLACE.
4235                          ;*
4236                          ;*      100000  174000  177600  177770  000000
4237                          ;*      140000  176000  177700  177774
4238                          ;*      160000  177000  177740  177776
4239                          ;*      170000  177400  177760  177777
4240                          ;*
4241                          ;**********************************************************************
4242  023446  000004          TST30:  SCOPE
4243  023450  012737  000764  001200          MOV     #500.,$TIMES        ;;DO 500. ITERATIONS
4244  023456  012701  000021                  MOV     #17.,R1             ;LOAD NUMBER OF PATTERNS
4245  023462  005037  002010                  CLR     CONFIG              ;LOAD INITIAL CONFIGURATION
4246  023466  012737  063722  001320          MOV     #EM8,EM3N           ;LOAD ERROR MESSAGE
4247  023474  012762  100000  000000          MOV     #CCLR,RKCS1(R2)     ;CLEAR RK611 WITH CONTROLLER CLEAR
4248  023502  012737  023510  001110          MOV     #1$,$LPERR          ;LOAD LOOP ON ERROR LOCATION FOR
4249                                                                      ;  SUBTEST LOOP
4250
```

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4251  023510                          1$:
4252  023510  005062  000002                  CLR     RKWC(R2)            ;CLEAR WORD COUNT REG.
4253  023514  013762  002010  000006          MOV     CONFIG,RKDA(R2)     ;WRITE RKDA
4254  023522  016237  000006  001126          MOV     RKDA(R2),$BDDAT     ;STORE RKDA
4255  023530  013737  002010  001124          MOV     CONFIG,$GDDAT       ;PREPARE EXPECTED RESULTS
4256  023536  042737  174340  001124          BIC     #174340,$GDDAT      ;INITIALIZE READ ONLY BITS
4257  023544  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;CHECK IF RKDA CORRECT
4258  023552  001404                          BEQ     2$                  ;YES,TEST IF ANY OTHER REG MODIFIED
4259  023554  012737  066661  001322          MOV     #EM1003,EM3N+2      ;LOAD ERROR MESSAGE
4260  023562  104003                          ERROR   3
4261  023564                          2$:
4262  023564  016237  000000  001126          MOV     RKCS1(R2),$BDDAT    ;STORE COMMAND AND STATUS REG. 1
4263  023572  022737  000200  001126          CMP     #RDY,$BDDAT         ;CHECK IF CS1 CORRECT
4264  023600  001407                          BEQ     3$                  ;YES, CONTINUE
4265  023602  012737  000100  001124          MOV     #IR,$GDDAT          ;LOAD EXPECTED RESULTS
4266  023610  012737  067314  001322          MOV     #EM1017,EM3N+2      ;LOAD ERROR MESSAGE
4267  023616  104003                          ERROR   3
4268  023620                          3$:
4269  023620  016237  000004  001126          MOV     RKBA(R2),$BDDAT     ;STORE BUS AND REG
4270  023626  001406                          BEQ     4$                  ;CHECK IF ZERO
4271  023630  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4272  023634  012737  067365  001322          MOV     #EM1019,EM3N+2      ;LOAD ERROR MESSAGE
4273  023642  104003                          ERROR   3
4274  023644                          4$:
4275  023644  016237  000002  001126          MOV     RKWC(R2),$BDDAT     ;STORE WORD COUNT REG
4276  023652  001406                          BEQ     5$                  ;CHECK IF ZERO
4277  023654  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4278  023660  012737  067335  001322          MOV     #EM1018,EM3N+2      ;LOAD ERROR MESSAGE
4279  023666  104003                          ERROR   3
4280  023670                          5$:
4281  023670  016237  000016  001126          MOV     RKASOF(R2),$BDDAT   ;STORE ATTENTION SUMMARY/OFFSET REG.
4282  023676  001406                          BEQ     7$                  ;CHECK IF ZERO
4283  023700  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4284  023704  012737  067556  001322          MOV     #EM1024,EM3N+2      ;LOAD ERROR MESSAGE
4285  023712  104003                          ERROR   3
4286  023714                          7$:
4287  023714  016237  000010  001126          MOV     RKCS2(R2),$BDDAT    ;STORE COMMAND AND STATUS REG.2
4288  023722  022737  000100  001126          CMP     #IR,$BDDAT          ;CHECK IF CS2 CORRECT
4289  023730  001407                          BEQ     8$                  ;YES,CONTINUE
4290  023732  012737  000100  001124          MOV     #IR,$GDDAT          ;LOAD EXPECTED CONTENTS
4291  023740  012737  067450  001322          MOV     #EM1021,EM3N+2      ;LOAD ERROR MESSAGE
4292  023746  104003                          ERROR   3
4293  023750                          8$:
4294  023750  016237  000012  001126          MOV     RKDS(R2),$BDDAT     ;STORE DRIVE STATUS REG
4295  023756  001406                          BEQ     9$                  ;CHECK IF ZERO
4296  023760  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4297  023764  012737  067471  001322          MOV     #EM1022,EM3N+2      ;LOAD ERROR MESSAGE
4298  023772  104003                          ERROR   3
4299  023774  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT     ;STORE ERROR REG
4300  024002  001406                          BEQ     10$                 ;CHECK IF ZERO
4301  024004  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4302  024010  012737  067527  001322          MOV     #EM1023,EM3N+2      ;LOAD ERROR MESSAGE
4303  024016  104003                          ERROR   3
4304  024020                          10$:
4305  024020  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT   ;STORE CYLINDER ADD REG
4306  024026  001406                          BEQ     12$                 ;CHECK IF ZERO
```

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4307  024030  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4308  024034  012737  067624  001322          MOV     #EM1025,EM3N+2      ;LOAD ERROR MESSAGE
4309  024042  104003                          ERROR   3
4310  024044                          12$:
4311  024044  016237  000026  001126          MOV     RKMR1(R2),$BDDAT    ;STORE MAINTENANCE REG.1
4312  024052  012737  002000  001124          MOV     #MEWD,$GDDAT        ;LOAD EXPECTED MR1
4313  024060  032737  020000  001126          BIT     #ECCW,$BDDAT
4314  024066  001403                          BEQ     13$
4315  024070  052737  020000  001124          BIS     #ECCW,$GDDAT
4316  024076  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT       ;CHECK IF MR1 CORRECT
4317  024104  001404                          BEQ     14$                 ;YES,ISSUE CONTROLLER CLEAR
4318  024106  012737  067651  001322          MOV     #EM1026,EM3N+2      ;LOAD ERROR MESSAGE
4319  024114  104003                          ERROR   3
4320  024116                          14$:
4321  024116  016237  000032  001126          MOV     RKECPT(R2),$BDDAT   ;STORE ECC PATTERN REG.
4322  024124  001406                          BEQ     15$                 ;CHECK IF ZERO
4323  024126  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4324  024132  012737  067727  001322          MOV     #EM1030,EM3N+2      ;LOAD ERROR MESSAGE
4325  024140  104003                          ERROR   3
4326  024142  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT   ;STORE ECC POSITION REG.
4327  024150  012737  004066  001124  16$:    MOV     #4066,$GDDAT        ;USE 4066
4328  024156  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT       ;CHECK IF ECC POSITION CORRECT
4329  024164  001404                          BEQ     18$                 ;YES,INITIALIZE RK611
4330  024166  012737  067702  001322          MOV     #EM1029,EM3N+2      ;LOAD ERROR MESSAGE
4331  024174  104003                          ERROR   3
4332  024176  016237  000006  002014  18$:    MOV     RKDA(R2),PREREG     ;GET PREVIOUS CONTENTS
4333  024204  012762  100000  000000          MOV     #CCLR,RKCS1(R2)     ;CLEAR RK611 CONTROLLER
4334  024212  016237  000006  001126          MOV     RKDA(R2),$BDDAT     ;GET CURRENT VALUE
4335  024220  005037  001124                  CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
4336  024224  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;CHECK IF RKDA CORRECT
4337  024232  001407                          BEQ     19$                 ;YES, CHECK IF FINISHED
4338  024234  012737  063403  001330          MOV     #EM3,EM4N           ;LOAD ERROR MESSAGE
4339  024242  012737  066661  001332          MOV     #EM1003,EM4N+2
4340  024250  104004                          ERROR   4
4341  024252  104415                  19$:    SCOP1                       ;CHECK IF LOOP ON ERROR
4342  024254  000261                          SEC                         ;SHIFT IN ONE
4343  024256  006137  002010                  ROL     CONFIG
4344  024262  005301                          DEC     R1                  ;CHECK IF FINISHED
4345  024264  001402                          BEQ     TST31               ;;YES, GO ON TO NEXT TEST .
4346  024266  000137  023510                  JMP     1$
4347
4348                          ;;*****************************************************************
4349                          ;*TEST 31       REGISTER INTERACTION USING ATTN/OFFSET (PART 1)
4350                          ;*
4351                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
4352                          ;*      WRITE THE WORD COUNT REGISTER WITH 0.
4353                          ;*
4354                          ;*      WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
4355                          ;*      WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTENTS AND
4356                          ;*      MAKE SURE NO INTERACTION TAKES PLACE.
4357                          ;*
4358                          ;*      000000  000010  000200  004000  100000
4359                          ;*      000001  000020  000400  010000
4360                          ;*      000002  000040  001000  020000
4361                          ;*      000004  000100  002000  040000
4362                          ;*
```

```
                                ;;*****************************************************************
                        ;TST31: SCOPE
024272  000004                
024274  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
024302  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
024306  012737  000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
024314  012737  064351  001320          MOV     #EM17,EM3N      ;LOAD ERROR MESSAGE
024322  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
024330  012737  024336  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
                        
024336                  1$:
024336  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
024342  013762  002010  000016          MOV     CONFIG,RKASOF(R2)       ;WRITE RKASOF
024350  016237  000016  001126          MOV     RKASOF(R2),$BDDAT       ;STORE RKASOF
024356  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
024364  042737  177400  001124          BIC     #177400,$GDDAT  ;INITIALIZE READ ONLY BITS
024372  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
024400  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
024402  012737  067001  001322          MOV     #EM1007,EM3N+2  ;LOAD ERROR MESSAGE
024410  104003                          ERROR   3
024412                  2$:
024412  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
024420  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
024426  001407                          BEQ     3$              ;YES, CONTINUE
024430  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
024436  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
024444  104003                          ERROR   3
024446                  3$:
024446  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
024454  001406                          BEQ     4$              ;CHECK IF ZERO
024456  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
024462  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
024470  104003                          ERROR   3
024472                  4$:
024472  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
024500  001406                          BEQ     5$              ;CHECK IF ZERO
024502  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
024506  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
024514  104003                          ERROR   3
024516                  5$:
024516  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
024524  001406                          BEQ     6$              ;CHECK IF ZERO
024526  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
024532  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
024540  104003                          ERROR   3
024542                  6$:
024542  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
024550  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
024556  001407                          BEQ     8$              ;YES, CONTINUE
024560  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
024566  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
024574  104003                          ERROR   3
024576                  8$:
024576  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
024604  001406                          BEQ     9$              ;CHECK IF ZERO
024606  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
```

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 4419  024612  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 4420  024620  104003                          ERROR   3
 4421  024622  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 4422  024630  001406                          BEQ     10$             ;CHECK IF ZERO
 4423  024632  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4424  024636  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 4425  024644  104003                          ERROR   3
 4426  024646                          10$:
 4427  024646  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 4428  024654  001406                          BEQ     12$             ;CHECK IF ZERO
 4429  024656  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4430  024662  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 4431  024670  104003                          ERROR   3
 4432  024672                          12$:
 4433  024672  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 4434  024700  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 4435  024706  032737  020000  001126          BIT     #ECCW,$BDDAT
 4436  024714  001403                          BEQ     13$
 4437  024716  052737  020000  001124          BIS     #ECCW,$GDDAT
 4438  024724  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 4439  024732  001404                          BEQ     14$             ;YES, ISSUE CONTROLLER CLEAR
 4440  024734  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 4441  024742  104003                          ERROR   3
 4442  024744                          14$:
 4443  024744  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 4444  024752  001406                          BEQ     15$             ;CHECK IF ZERO
 4445  024754  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4446  024760  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 4447  024766  104003                          ERROR   3
 4448  024770  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
 4449  024776  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
 4450  025004  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
 4451  025012  001404                          BEQ     18$             ;YES,INITIALIZE RK611
 4452  025014  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 4453  025022  104003                          ERROR   3
 4454  025024  016237  000016  002014  18$:    MOV     RKASOF(R2),PREREG       ;GET PREVIOUS CONTENTS
 4455  025032  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
 4456  025040  016237  000016  001126          MOV     RKASOF(R2),$BDDAT       ;GET CURRENT VALUE
 4457  025046  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4458  025052  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
 4459  025060  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
 4460  025062  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
 4461  025070  012737  067001  001332          MOV     #EM1007,EM4N+2
 4462  025076  104004                          ERROR   4
 4463  025100  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 4464  025102  000241                          CLC                     ;SHIFT IN ZERO
 4465  025104  006137  002010                  ROL     CONFIG
 4466  025110  005301                          DEC     R1              ;CHECK IF FINISHED
 4467  025112  001402                          BEQ     TST32           ;;YES, GO ON TO NEXT TEST
 4468  025114  000137  024336                  JMP     1$
 4469
 4470                          ;;*****************************************************************
 4471                          ;*TEST 32        REGISTER INTERACTION USING ATTN/OFFSET (PART 2)
 4472                          ;*
 4473                          ;*       ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
 4474                          ;*       WRITE THE WORD COUNT REGISTER WITH 0.
```

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                                        ;*
                                        ;*      WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
                                        ;*      WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTENTS AND
                                        ;*      MAKE SURE NO INTERACTION TAKES PLACE.
                                        ;*
                                        ;*      177777  177767  177577  173777  077777
                                        ;*      177776  177757  177377  167777
                                        ;*      177775  177737  176777  157777
                                        ;*      177773  177677  175777  137777
                                        ;*
                                        ;**********************************************************************
025120  000004                  TST32:  SCOPE
025122  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
025130  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
025134  012737  177776  002010          MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
025142  012737  064351  001320          MOV     #EM17,EM3N      ;LOAD ERROR MESSAGE
025150  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
025156  012737  025164  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
025164                          1$:
025164  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
025170  013762  002010  000016          MOV     CONFIG,RKASOF(R2)       ;WRITE RKASOF
025176  016237  000016  001126          MOV     RKASOF(R2),$BDDAT       ;STORE RKASOF
025204  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
025212  042737  177400  001124          BIC     #177400,$GDDAT  ;INITIALIZE READ ONLY BITS
025220  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
025226  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
025230  012737  067001  001322          MOV     #EM1007,EM3N+2  ;LOAD ERROR MESSAGE
025236  104003                          ERROR   3
025240                          2$:
025240  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
025246  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
025254  001407                          BEQ     3$              ;YES, CONTINUE
025256  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
025264  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
025272  104003                          ERROR   3
025274                          3$:
025274  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
025302  001406                          BEQ     4$              ;CHECK IF ZERO
025304  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
025310  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
025316  104003                          ERROR   3
025320                          4$:
025320  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
025326  001406                          BEQ     5$              ;CHECK IF ZERO
025330  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
025334  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
025342  104003                          ERROR   3
025344                          5$:
025344  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
025352  001406                          BEQ     6$              ;CHECK IF ZERO
025354  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
025360  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
025366  104003                          ERROR   3
025370                          6$:
```

```
 4531  025370  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 4532  025376  022737  000100  001126          CMP     #IR,$BDDAT       ;CHECK IF CS2 CORRECT
 4533  025404  001407                          BEQ     8$               ;YES,CONTINUE
 4534  025406  012737  000100  001124          MOV     #IR,$GDDAT       ;LOAD EXPECTED CONTENTS
 4535  025414  012737  067450  001322          MOV     #EM1021,EM3N+2   ;LOAD ERROR MESSAGE
 4536  025422  104003                          ERROR   3
 4537  025424                          8$:
 4538  025424  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 4539  025432  001406                          BEQ     9$              ;CHECK IF ZERO
 4540  025434  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4541  025440  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 4542  025446  104003                          ERROR   3
 4543  025450  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 4544  025456  001406                          BEQ     10$             ;CHECK IF ZERO
 4545  025460  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4546  025464  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 4547  025472  104003                          ERROR   3
 4548  025474                          10$:
 4549  025474  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 4550  025502  001406                          BEQ     12$             ;CHECK IF ZERO
 4551  025504  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4552  025510  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 4553  025516  104003                          ERROR   3
 4554  025520                          12$:
 4555  025520  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 4556  025526  012737  002000  001124          MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
 4557  025534  032737  020000  001126          BIT     #ECCW,$BDDAT
 4558  025542  001403                          BEQ     13$
 4559  025544  052737  020000  001124          BIS     #ECCW,$GDDAT
 4560  025552  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
 4561  025560  001404                          BEQ     14$              ;YES,ISSUE CONTROLLER CLEAR
 4562  025562  012737  067651  001322          MOV     #EM1026,EM3N+2   ;LOAD ERROR MESSAGE
 4563  025570  104003                          ERROR   3
 4564  025572                          14$:
 4565  025572  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 4566  025600  001406                          BEQ     15$               ;CHECK IF ZERO
 4567  025602  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
 4568  025606  012737  067727  001322          MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
 4569  025614  104003                          ERROR   3
 4570  025616  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
 4571  025624  012737  004066  001124  16$:    MOV     #4066,$GDDAT      ;USE 4066
 4572  025632  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
 4573  025640  001404                          BEQ     18$               ;YES,INITIALIZE RK611
 4574  025642  012737  067702  001322          MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
 4575  025650  104003                          ERROR   3
 4576  025652  016237  000016  002014  18$:    MOV     RKASOF(R2),PREREG         ;GET PREVIOUS CONTENTS
 4577  025660  012762  100000  000000          MOV     #CCLR,RKCS1(R2)  ;CLEAR RK611 CONTROLLER
 4578  025666  016237  000016  001126          MOV     RKASOF(R2),$BDDAT         ;GET CURRENT VALUE
 4579  025674  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
 4580  025700  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;CHECK IF RKASOF CORRECT
 4581  025706  001407                          BEQ     19$               ;YES, CHECK IF FINISHED
 4582  025710  012737  063403  001330          MOV     #EM3,EM4N         ;LOAD ERROR MESSAGE
 4583  025716  012737  067001  001332          MOV     #EM1007,EM4N+2
 4584  025724  104004                          ERROR   4
 4585  025726  104415                  19$:    SCOP1                     ;CHECK IF LOOP ON ERROR
 4586  025730  000261                          SEC                       ;SHIFT IN ONE
```

```
                                        ROL     CONFIG
                                        DEC     R1              ;CHECK IF FINISHED
                                        BEQ     TST33           ;;YES, GO ON TO NEXT TEST
                                        JMP     1$

                        ;;*******************************************************************
                        ;*TEST 33       REGISTER INTERACTION USING ATTN/OFFSET (PART 3)
                        ;*
                        ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
                        ;*      WRITE THE WORD COUNT REGISTER WITH 0.
                        ;*
                        ;*      WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
                        ;*      WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTENTS AND
                        ;*      MAKE SURE NO INTERACTION TAKES PLACE.
                        ;*
                        ;*      000001  000037  000777  017777  000000
                        ;*      000003  000077  001777  037777
                        ;*      000007  000177  003777  077777
                        ;*      000017  000377  007777  177777
                        ;*
                        ;*******************************************************************
                        TST33:  SCOPE
                                MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
                                MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
                                CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
                                MOV     #EM17,EM3N      ;LOAD ERROR MESSAGE
                                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
                                MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                        ;  SUBTEST LOOP

                        1$:
                                CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
                                MOV     CONFIG,RKASOF(R2)       ;WRITE RKASOF
                                MOV     RKASOF(R2),$BDDAT       ;STORE RKASOF
                                MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
                                BIC     #177400,$GDDAT  ;INITIALIZE READ ONLY BITS
                                CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
                                BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
                                MOV     #EM1007,EM3N+2  ;LOAD ERROR MESSAGE
                                ERROR   3
                        2$:
                                MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
                                CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
                                BEQ     3$              ;YES, CONTINUE
                                MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
                                MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
                                ERROR   3
                        3$:
                                MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
                                BEQ     4$              ;CHECK IF ZERO
                                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                                MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
                                ERROR   3
                        4$:
                                MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
                                BEQ     5$              ;CHECK IF ZERO
```

```
 4643  026154  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4644  026160  012737  067335  001322            MOV     #EM1018,EM3N+2          ;LOAD ERROR MESSAGE
 4645  026166  104003                            ERROR   3
 4646  026170                                5$:
 4647  026170  016237  000006  001126            MOV     RKDA(R2),$BDDAT         ;STORE DISK AVERAGE REG
 4648  026176  001406                            BEQ     6$                      ;CHECK IF ZERO
 4649  026200  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4650  026204  012737  067412  001322            MOV     #EM1020,EM3N+2          ;LOAD ERROR MESSAGE
 4651  026212  104003                            ERROR   3
 4652  026214                                6$:
 4653  026214  016237  000010  001126            MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.2
 4654  026222  022737  000100  001126            CMP     #IR,$BDDAT              ;CHECK IF CS2 CORRECT
 4655  026230  001407                            BEQ     8$                      ;YES,CONTINUE
 4656  026232  012737  000100  001124            MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
 4657  026240  012737  067450  001322            MOV     #EM1021,EM3N+2          ;LOAD ERROR MESSAGE
 4658  026246  104003                            ERROR   3
 4659  026250                                8$:
 4660  026250  016237  000012  001126            MOV     RKDS(R2),$BDDAT         ;STORE DRIVE STATUS REG
 4661  026256  001406                            BEQ     9$                      ;CHECK IF ZERO
 4662  026260  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4663  026264  012737  067471  001322            MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
 4664  026272  104003                            ERROR   3
 4665  026274  016237  000014  001126  9$:       MOV     RKER(R2),$BDDAT         ;STORE ERROR REG
 4666  026302  001406                            BEQ     10$                     ;CHECK IF ZERO
 4667  026304  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4668  026310  012737  067527  001322            MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
 4669  026316  104003                            ERROR   3
 4670  026320                               10$:
 4671  026320  016237  000020  001126            MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADD REG
 4672  026326  001406                            BEQ     12$                     ;CHECK IF ZERO
 4673  026330  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4674  026334  012737  067624  001322            MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
 4675  026342  104003                            ERROR   3
 4676  026344                               12$:
 4677  026344  016237  000026  001126            MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG.1
 4678  026352  012737  002000  001124            MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
 4679  026360  032737  020000  001126            BIT     #ECCW,$BDDAT
 4680  026366  001403                            BEQ     13$
 4681  026370  052737  020000  001124            BIS     #ECCW,$GDDAT
 4682  026376  023737  001124  001126  13$:      CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
 4683  026404  001404                            BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
 4684  026406  012737  067651  001322            MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
 4685  026414  104003                            ERROR   3
 4686  026416                               14$:
 4687  026416  016237  000032  001126            MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
 4688  026424  001406                            BEQ     15$                     ;CHECK IF ZERO
 4689  026426  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 4690  026432  012737  067727  001322            MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
 4691  026440  104003                            ERROR   3
 4692  026442  016237  000030  001126  15$:      MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
 4693  026450  012737  004066  001124  16$:      MOV     #4066,$GDDAT            ;USE 4066
 4694  026456  023737  001124  001126  17$:      CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
 4695  026464  001404                            BEQ     18$                     ;YES,INITIALIZE RK611
 4696  026466  012737  067702  001322            MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
 4697  026474  104003                            ERROR   3
 4698  026476  016237  000016  002014  18$:      MOV     RKASOF(R2),PREREG       ;GET PREVIOUS CONTENTS
```

```
4699  026504  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
4700  026512  016237  000016  001126          MOV     RKASOF(R2),$BDDAT       ;GET CURRENT VALUE
4701  026520  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
4702  026524  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
4703  026532  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
4704  026534  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
4705  026542  012737  067001  001332          MOV     #EM1007,EM4N+2
4706  026550  104004                          ERROR   4
4707  026552  104415                19$:      SCOPE                   ;CHECK IF LOOP ON ERROR
4708  026554  000261                          SEC                     ;SHIFT IN ONE
4709  026556  006137  002010                  ROL     CONFIG
4710  026562  005301                          DEC     R1              ;CHECK IF FINISHED
4711  026564  001402                          BEQ     TST34           ;;YES, GO ON TO NEXT TEST
4712  026566  000137  026010                  JMP     1$
4713
4714                                ;;*****************************************************************
4715                                ;*TEST 34       REGISTER INTERACTION USING ATTN/OFFSET (PART 4)
4716                                ;*
4717                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE THE RK611 REGISTERS.
4718                                ;*      WRITE THE WORD COUNT REGISTER WITH 0.
4719                                ;*
4720                                ;*      WRITE THE ATTENTION SUMMARY AND OFFSET REGISTER
4721                                ;*      WITH THE FOLLOWING CONFIGURATIONS. CHECK REGISTER CONTENTS AND
4722                                ;*      MAKE SURE NO INTERACTION TAKES PLACE.
4723                                ;*
4724                                ;*      100000  174000  177600  177770  000000
4725                                ;*      140000  176000  177700  177774
4726                                ;*      160000  177000  177740  177776
4727                                ;*      170000  177400  177760  177777
4728                                ;*
4729                                ;;*****************************************************************
4730  026572  000004                TST34:  SCOPE
4731  026574  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
4732  026602  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
4733  026606  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
4734  026612  012737  064351  001320          MOV     #EM17,EM3N      ;LOAD ERROR MESSAGE
4735  026620  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
4736  026626  012737  026634  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4737                                                                  ;  SUBTEST LOOP
4738
4739  026634                        1$:
4740  026634  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
4741  026640  013762  002010  000016          MOV     CONFIG,RKASOF(R2)       ;WRITE RKASOF
4742  026646  016237  000016  001126          MOV     RKASOF(R2),$BDDAT       ;STORE RKASOF
4743  026654  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
4744  026662  042737  177400  001124          BIC     #177400,$GDDAT  ;INITIALIZE READ ONLY BITS
4745  026670  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
4746  026676  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
4747  026700  012737  067001  001322          MOV     #EM1007,EM3N+2  ;LOAD ERROR MESSAGE
4748  026706  104003                          ERROR   3
4749  026710                        2$:
4750  026710  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
4751  026716  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
4752  026724  001407                          BEQ     3$              ;YES, CONTINUE
4753  026726  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
4754  026734  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
```

```
                                                ERROR   3
                                        3$:
                        000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
                                                BEQ     4$              ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        4$:
                        000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
                                                BEQ     5$              ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        5$:
                        000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
                                                BEQ     6$              ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        6$:
                        000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
                        000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
                                                BEQ     8$              ;YES,CONTINUE
                        000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
                        067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        8$:
                        000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
                                                BEQ     9$              ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                        000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
                                                BEQ     10$             ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        10$:
                        000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
                                                BEQ     12$             ;CHECK IF ZERO
                        001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        12$:
                        000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
                        002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
                        020000  001126          BIT     #ECCW,$BDDAT
                                                BEQ     13$
                        020000  001124          BIS     #ECCW,$GDDAT
                        001124  001126  13$:     CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
                                                BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
                        067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
                                                ERROR   3
                                        14$:
                        000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
                                                BEQ     15$             ;CHECK IF ZERO
```

```
                                        CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
                                        MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
                                        ERROR   3
                        000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
                        004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
                        001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
                        001404                  BEQ     18$             ;YES, INITIALIZE RK611
                        067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
                                        ERROR   3
                        000016  002014  18$:    MOV     RKASOF(R2),PREREG       ;GET PREVIOUS CONTENTS
                        100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
                        000016  001126          MOV     RKASOF(R2),$BDDAT       ;GET CURRENT VALUE
                        005037  001124          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
                        023737  001124  001126  CMP     $GDDAT,$BDDAT   ;CHECK IF RKASOF CORRECT
                        001407                  BEQ     19$             ;YES, CHECK IF FINISHED
                        063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
                        067001  001332          MOV     #EM1007,EM4N+2
                                        ERROR   4
                                19$:    SCOPI                           ;CHECK IF LOOP ON ERROR
                                        SEC                             ;SHIFT IN ONE
                        006037  002010          ROR     CONFIG
                                        DEC     R1                      ;CHECK IF FINISHED
                                        BEQ     TST35                   ;;YES, GO ON TO NEXT TEST
                        000137  026634          JMP     1$

;;*****************************************************************
;*TEST 35        REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 1)
;*
;*      RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
;*      WRITE THE WORD COUNT REGISTER WITH ZERO.
;*
;*      WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING CONFIGURATIONS
;*      SUCH THAT SUBSYSTEM CLEAR IS RESET, CHECK COMMAND AND STATUS
;*      REG. 2 AND CHECK FOR REGISTER INTERACTION.
;*
;*      000000  000010  000400  010000
;*      000001  000020  001000  020000
;*      000002  000100  002000  040000
;*      000004  000200  004000  100000
;*
;*****************************************************************
        000004
TST35:  SCOPE
                        000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
                        000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
                        000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
                        000001  002012          MOV     #000001,CONFG1
                        064426  001320          MOV     #EM18,EM3N      ;LOAD ERROR MESSAGE
                        100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
                        027470  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
        027470
1$:
        027470  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
        027474  013762  002010  000010          MOV     CONFIG,RKCS2(R2)        ;WRITE RKCS2
        027502  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;STORE RKCS2
        027510  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
```

```
 4867  027516  042737  177600  001124          BIC     #DLT!WCE!UPE!NED!NEM!PGE!MDS!UFE!OR,$GDDAT
 4868  027524  052737  000100  001124          BIS     #IR,$GDDAT      ;INITIALIZE READ ONLY BITS
 4869  027532  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS2 CORRECT
 4870  027540  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
 4871  027542  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
 4872  027550  104003                          ERROR   3
 4873  027552                          2$:
 4874  027552  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
 4875  027560  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
 4876  027566  001407                          BEQ     3$              ;YES, CONTINUE
 4877  027570  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
 4878  027576  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 4879  027604  104003                          ERROR   3
 4880  027606                          3$:
 4881  027606  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
 4882  027614  001406                          BEQ     4$              ;CHECK IF ZERO
 4883  027616  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4884  027622  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 4885  027630  104003                          ERROR   3
 4886  027632                          4$:
 4887  027632  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
 4888  027640  001406                          BEQ     5$              ;CHECK IF ZERO
 4889  027642  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4890  027646  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
 4891  027654  104003                          ERROR   3
 4892  027656                          5$:
 4893  027656  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
 4894  027664  001406                          BEQ     6$              ;CHECK IF ZERO
 4895  027666  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4896  027672  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 4897  027700  104003                          ERROR   3
 4898  027702                          6$:
 4899  027702  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 4900  027710  001406                          BEQ     7$              ;CHECK IF ZERO
 4901  027712  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4902  027716  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 4903  027724  104003                          ERROR   3
 4904  027726                          7$:
 4905  027726  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 4906  027734  001406                          BEQ     9$              ;CHECK IF ZERO
 4907  027736  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4908  027742  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 4909  027750  104003                          ERROR   3
 4910  027752  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 4911  027760  001406                          BEQ     10$             ;CHECK IF ZERO
 4912  027762  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4913  027766  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 4914  027774  104003                          ERROR   3
 4915  027776                          10$:
 4916  027776  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 4917  030004  001406                          BEQ     12$             ;CHECK IF ZERO
 4918  030006  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 4919  030012  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 4920  030020  104003                          ERROR   3
 4921  030022                          12$:
 4922  030022  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
```

```
4923  030030  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
4924  030036  032737  020000  001126          BIT     #ECCW,$BDDAT
4925  030044  001403                          BEQ     13$
4926  030046  052737  020000  001124          BIS     #ECCW,$GDDAT
4927  030054  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
4928  030062  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
4929  030064  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
4930  030072  104003                          ERROR   3
4931  030074                          14$:
4932  030074  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
4933  030102  001406                          BEQ     15$             ;CHECK IF ZERO
4934  030104  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
4935  030110  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
4936  030116  104003                          ERROR   3
4937  030120  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
4938  030126  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
4939  030134  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
4940  030142  001404                          BEQ     18$             ;YES,INITIALIZE RK611
4941  030144  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
4942  030152  104003                          ERROR   3
4943  030154  016237  000010  002014  18$:    MOV     RKCS2(R2),PREREG        ;GET PREVIOUS CONTENTS
4944  030162  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
4945  030170  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;GET CURRENT VALUE
4946  030176  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
4947  030204  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS2 CORRECT
4948  030212  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
4949  030214  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
4950  030222  012737  066704  001332          MOV     #EM1004,EM4N+2
4951  030230  104004                          ERROR   4
4952  030232  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
4953  030234  000241                          CLC                     ;SHIFT IN ZERO
4954  030236  006137  002012                  ROL     CONFG1
4955  030242  013737  002012  002010          MOV     CONFG1,CONFIG   ;MAKE SURE SUBSYSTEM CLEAR
4956  030250  042737  000040  002010          BIC     #SCLR,CONFIG    ;  DOES NOT SET
4957  030256  005301                          DEC     R1              ;CHECK IF FINISHED
4958  030260  001402                          BEQ     TST36           ;;YES, GO ON TO NEXT TEST
4959  030262  000137  027470                  JMP     1$
4960
4961                          ;*****************************************************************
4962                          ;*TEST 36       REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 2)
4963                          ;*
4964                          ;*      RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
4965                          ;*      WRITE THE WORD COUNT REGISTER WITH ZERO.
4966                          ;*
4967                          ;*      WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING CONFIGURATIONS
4968                          ;*      SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND STATUS
4969                          ;*      REG. 2 AND CHECK FOR REGISTER INTERACTION.
4970                          ;*
4971                          ;*      177737  177727  177337  167737
4972                          ;*      177736  177717  176737  157737
4973                          ;*      177735  177637  175737  137737
4974                          ;*      177733  177537  173737  077737
4975                          ;*
4976                          ;*****************************************************************
4977  030266  000004          TST36:  SCOPE
4978  030270  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
```

```
 4979  030276  012701  000021                    MOV     #17.,R1             ;LOAD NUMBER OF PATTERNS
 4980  030302  012737  177736  002010            MOV     #177736,CONFIG      ;LOAD INITIAL CONFIGURATION
 4981  030310  012737  177776  002012            MOV     #177776,CONFG1
 4982  030316  012737  064426  001320            MOV     #EM18,EM3N          ;LOAD ERROR MESSAGE
 4983  030324  012762  100000  000000            MOV     #CCLR,RKCS1(R2)     ;CLEAR RK611 WITH CONTROLLER CLEAR
 4984  030332  012737  030340  001110            MOV     #1$,$LPERR          ;LOAD LOOP ON ERROR LOCATION FOR
 4985                                                                        ;  SUBTEST LOOP
 4986
 4987  030340                                1$:
 4988  030340  005062  000002                    CLR     RKWC(R2)            ;CLEAR WORD COUNT REG.
 4989  030344  013762  002010  000010            MOV     CONFIG,RKCS2(R2)            ;WRITE RKCS2
 4990  030352  016237  000010  001126            MOV     RKCS2(R2),$BDDAT            ;STORE RKCS2
 4991  030360  013737  002010  001124            MOV     CONFIG,$GDDAT       ;PREPARE EXPECTED RESULTS
 4992  030366  042737  177600  001124            BIC     #DLT!WCE!UPE!NED!NEM!PGE!MDS!UFE!OR,$GDDAT
 4993  030374  052737  000100  001124            BIS     #IR,$GDDAT          ;INITIALIZE READ ONLY BITS
 4994  030402  023737  001124  001126            CMP     $GDDAT,$BDDAT       ;CHECK IF RKCS2 CORRECT
 4995  030410  001404                            BEQ     2$                  ;YES, TEST IF ANY OTHER REG MODIFIED
 4996  030412  012737  066704  001322            MOV     #EM1004,EM3N+2      ;LOAD ERROR MESSAGE
 4997  030420  104003                            ERROR   3
 4998  030422                                2$:
 4999  030422  016237  000000  001126            MOV     RKCS1(R2),$BDDAT    ;STORE COMMAND AND STATUS REG. 1
 5000  030430  022737  000200  001126            CMP     #RDY,$BDDAT         ;CHECK IF CS1 CORRECT
 5001  030436  001407                            BEQ     3$                  ;YES, CONTINUE
 5002  030440  012737  000100  001124            MOV     #IR,$GDDAT          ;LOAD EXPECTED RESULTS
 5003  030446  012737  067314  001322            MOV     #EM1017,EM3N+2      ;LOAD ERROR MESSAGE
 5004  030454  104003                            ERROR   3
 5005  030456                                3$:
 5006  030456  016237  000004  001126            MOV     RKBA(R2),$BDDAT     ;STORE BUS AND REG
 5007  030464  001406                            BEQ     4$                  ;CHECK IF ZERO
 5008  030466  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
 5009  030472  012737  067365  001322            MOV     #EM1019,EM3N+2      ;LOAD ERROR MESSAGE
 5010  030500  104003                            ERROR   3
 5011  030502                                4$:
 5012  030502  016237  000002  001126            MOV     RKWC(R2),$BDDAT     ;STORE WORD COUNT REG
 5013  030510  001406                            BEQ     5$                  ;CHECK IF ZERO
 5014  030512  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
 5015  030516  012737  067335  001322            MOV     #EM1018,EM3N+2      ;LOAD ERROR MESSAGE
 5016  030524  104003                            ERROR   3
 5017  030526                                5$:
 5018  030526  016237  000006  001126            MOV     RKDA(R2),$BDDAT     ;STORE DISK AVERAGE REG
 5019  030534  001406                            BEQ     6$                  ;CHECK IF ZERO
 5020  030536  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
 5021  030542  012737  067412  001322            MOV     #EM1020,EM3N+2      ;LOAD ERROR MESSAGE
 5022  030550  104003                            ERROR   3
 5023  030552                                6$:
 5024  030552  016237  000016  001126            MOV     RKASOF(R2),$BDDAT   ;STORE ATTENTION SUMMARY/OFFSET REG.
 5025  030560  001406                            BEQ     7$                  ;CHECK IF ZERO
 5026  030562  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
 5027  030566  012737  067556  001322            MOV     #EM1024,EM3N+2      ;LOAD ERROR MESSAGE
 5028  030574  104003                            ERROR   3
 5029  030576                                7$:
 5030  030576  016237  000012  001126            MOV     RKDS(R2),$BDDAT     ;STORE DRIVE STATUS REG
 5031  030604  001406                            BEQ     9$                  ;CHECK IF ZERO
 5032  030606  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
 5033  030612  012737  067471  001322            MOV     #EM1022,EM3N+2      ;LOAD ERROR MESSAGE
 5034  030620  104003                            ERROR   3
```

```
5035  030622  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5036  030630  001406                          BEQ     10$             ;CHECK IF ZERO
5037  030632  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5038  030636  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5039  030644  104003                          ERROR   3
5040  030646                          10$:
5041  030646  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
5042  030654  001406                          BEQ     12$             ;CHECK IF ZERO
5043  030656  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5044  030662  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
5045  030670  104003                          ERROR   3
5046  030672                          12$:
5047  030672  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
5048  030700  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
5049  030706  032737  020000  001126          BIT     #ECCW,$BDDAT
5050  030714  001403                          BEQ     13$
5051  030716  052737  020000  001124          BIS     #ECCW,$GDDAT
5052  030724  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5053  030732  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
5054  030734  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
5055  030742  104003                          ERROR   3
5056  030744                          14$:
5057  030744  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5058  030752  001406                          BEQ     15$             ;CHECK IF ZERO
5059  030754  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5060  030760  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
5061  030766  104003                          ERROR   3
5062  030770  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
5063  030776  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
5064  031004  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
5065  031012  001404                          BEQ     18$             ;YES,INITIALIZE RK611
5066  031014  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
5067  031022  104003                          ERROR   3
5068  031024  016237  000010  002014  18$:    MOV     RKCS2(R2),PREREG        ;GET PREVIOUS CONTENTS
5069  031032  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
5070  031040  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;GET CURRENT VALUE
5071  031046  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
5072  031054  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS2 CORRECT
5073  031062  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
5074  031064  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
5075  031072  012737  066704  001332          MOV     #EM1004,EM4N+2
5076  031100  104004                          ERROR   4
5077  031102  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
5078  031104  000261                          SEC                     ;SHIFT IN ONE
5079  031106  006137  002012                  ROL     CONFG1
5080  031112  013737  002012  002010          MOV     CONFG1,CONFIG   ;MAKE SURE SUBSYSTEM CLEAR
5081  031120  042737  000040  002010          BIC     #SCLR,CONFIG    ;  DOES NOT SET
5082  031126  005301                          DEC     R1              ;CHECK IF FINISHED
5083  031130  001402                          BEQ     TST37           ;;YES, GO ON TO NEXT TEST
5084  031132  000137  030340                  JMP     1$
5085
5086                          ;;*****************************************************************
5087                          ;*TEST 37        REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 3)
5088                          ;*
5089                          ;*      RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
5090                          ;*      WRITE THE WORD COUNT REGISTER WITH ZERO.
```

```
                                        ;*
                                        ;*      WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING CONFIGURATIONS
                                        ;*      SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND STATUS
                                        ;*      REG. 2 AND CHECK FOR REGISTER INTERACTION.
                                        ;*
                                        ;*      000001  000037  001737  037737
                                        ;*      000003  000137  003737  077737
                                        ;*      000007  000337  007737  177737
                                        ;*      000017  000737  017737  000000
                                        ;*
                                        ;**************************************************************************
031136  000004                  TST37:  SCOPE
031140  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
031146  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
031152  005037  002010                  CLR     CONFIG          ;LOAD INITIAL OCNFIGURATION
031156  005037  002012                  CLR     CONFG1
031162  012737  064426  001320          MOV     #EM18,EM3N      ;LOAD ERROR MESSAGE
031170  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
031176  012737  031204  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
031204                          1$:
031204  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
031210  013762  002010  000010          MOV     CONFIG,RKCS2(R2)        ;WRITE RKCS2
031216  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;STORE RKCS2
031224  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
031232  042737  177600  001124          BIC     #DLT!WCE!UPE!NED!NEM!PGE!MDS!UFE!OR,$GDDAT
031240  052737  000100  001124          BIS     #IR,$GDDAT      ;INITIALIZE READ ONLY BITS
031246  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS2 CORRECT
031254  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
031256  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
031264  104003                          ERROR   3
031266                          2$:
031266  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
031274  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
031302  001407                          BEQ     3$              ;YES, CONTINUE
031304  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
031312  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
031320  104003                          ERROR   3
031322                          3$:
031322  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
031330  001406                          BEQ     4$              ;CHECK IF ZERO
031332  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
031336  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
031344  104003                          ERROR   3
031346                          4$:
031346  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
031354  001406                          BEQ     5$              ;CHECK IF ZERO
031356  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
031362  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
031370  104003                          ERROR   3
031372                          5$:
031372  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
031400  001406                          BEQ     6$              ;CHECK IF ZERO
031402  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
031406  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
```

```
5147  031414  104003                          ERROR   3
5148  031416                          6$:
5149  031416  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
5150  031424  001406                          BEQ     7$                ;CHECK IF ZERO
5151  031426  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
5152  031432  012737  067556  001322          MOV     #EM1024,EM3N+2    ;LOAD ERROR MESSAGE
5153  031440  104003                          ERROR   3
5154  031442                          7$:
5155  031442  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
5156  031450  001406                          BEQ     9$              ;CHECK IF ZERO
5157  031452  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5158  031456  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
5159  031464  104003                          ERROR   3
5160  031466  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5161  031474  001406                          BEQ     10$             ;CHECK IF ZERO
5162  031476  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5163  031502  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5164  031510  104003                          ERROR   3
5165  031512                          10$:
5166  031512  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
5167  031520  001406                          BEQ     12$               ;CHECK IF ZERO
5168  031522  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
5169  031526  012737  067624  001322          MOV     #EM1025,EM3N+2    ;LOAD ERROR MESSAGE
5170  031534  104003                          ERROR   3
5171  031536                          12$:
5172  031536  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
5173  031544  012737  002000  001124          MOV     #MEWD,$GDDAT     ;LOAD EXPECTED MR1
5174  031552  032737  020000  001126          BIT     #ECCW,$BDDAT
5175  031560  001403                          BEQ     13$
5176  031562  052737  020000  001124          BIS     #ECCW,$GDDAT
5177  031570  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT    ;CHECK IF MR1 CORRECT
5178  031576  001404                          BEQ     14$              ;YES,ISSUE CONTROLLER CLEAR
5179  031600  012737  067651  001322          MOV     #EM1026,EM3N+2   ;LOAD ERROR MESSAGE
5180  031606  104003                          ERROR   3
5181  031610                          14$:
5182  031610  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5183  031616  001406                          BEQ     15$               ;CHECK IF ZERO
5184  031620  005037  001124                  CLR     $GDDAT            ;LOAD EXPECTED CONTENTS
5185  031624  012737  067727  001322          MOV     #EM1030,EM3N+2    ;LOAD ERROR MESSAGE
5186  031632  104003                          ERROR   3
5187  031634  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
5188  031642  012737  004066  001124  16$:    MOV     #4066,$GDDAT      ;USE 4066
5189  031650  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT     ;CHECK IF ECC POSITION CORRECT
5190  031656  001404                          BEQ     18$               ;YES,INITIALIZE RK611
5191  031660  012737  067702  001322          MOV     #EM1029,EM3N+2    ;LOAD ERROR MESSAGE
5192  031666  104003                          ERROR   3
5193  031670  016237  000010  002014  18$:    MOV     RKCS2(R2),PREREG          ;GET PREVIOUS CONTENTS
5194  031676  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
5195  031704  016237  000010  001126          MOV     RKCS2(R2),$BDDAT          ;GET CURRENT VALUE
5196  031712  012737  000100  001124          MOV     #IR,$GDDAT        ;LOAD EXPECTED CONTENTS
5197  031720  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;CHECK IF RKCS2 CORRECT
5198  031726  001407                          BEQ     19$               ;YES, CHECK IF FINISHED
5199  031730  012737  063403  001330          MOV     #EM3,EM4N         ;LOAD ERROR MESSAGE
5200  031736  012737  066704  001332          MOV     #EM1004,EM4N+2
5201  031744  104004                          ERROR   4
5202  031746  104415                  19$:    SCOP1                     ;CHECK IF LOOP ON ERROR
```

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 5203  031750  000261                          SEC                     ;SHIFT IN ONE
 5204  031752  006137  002012                  ROL     CONFG1
 5205  031756  013737  002012  002010          MOV     CONFG1,CONFIG   ;MAKE SURE SUBSYSTEM CLEAR
 5206  031764  042737  000040  002010          BIC     #SCLR,CONFIG    ;  DOES NOT SET
 5207  031772  005301                          DEC     R1              ;CHECK IF FINISHED
 5208  031774  001402                          BEQ     TST40           ;;YES, GO ON TO NEXT TEST
 5209  031776  000137  031204                  JMP     1$
 5210
 5211                                  ;;*****************************************************************
 5212                                  ;*TEST 40       REGISTER INTERACTION USING COMMAND STATUS REG. 2 (PART 4)
 5213                                  ;*
 5214                                  ;*      RESET THE RK611 REGISTERS WITH A CONTROLLER CLEAR.
 5215                                  ;*      WRITE THE WORD COUNT REGISTER WITH ZERO.
 5216                                  ;*
 5217                                  ;*      WRITE COMMAND AND STATUS REGISTER 2 WITH THE FOLLOWING CONFIGURATIONS
 5218                                  ;*      SUCH THAT SUBSYSTEM CLEAR IS RESET. CHECK COMMAND AND STATUS
 5219                                  ;*      REG. 2 AND CHECK FOR REGISTER INTERACTION.
 5220                                  ;*
 5221                                  ;*      100000  174000  177600  177734
 5222                                  ;*      140000  176000  177700  177736
 5223                                  ;*      160000  177000  177720  177737
 5224                                  ;*      170000  177400  177730  000000
 5225                                  ;*
 5226                                  ;*****************************************************************
 5227  032002  000004                  TST40:  SCOPE
 5228  032004  012737  000764  001200          MOV     #500.,STIMES    ;;DO 500. ITERATIONS
 5229  032012  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
 5230  032016  005037  002010                  CLR     CONFIG          ;LOAD INITIAL OCNFIGURATION
 5231  032022  005037  002012                  CLR     CONFG1
 5232  032026  012737  064426  001320          MOV     #EM18,EM3N      ;LOAD ERROR MESSAGE
 5233  032034  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
 5234  032042  012737  032050  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                      ;  SUBTEST LOOP
 5235
 5236
 5237  032050                          1$:
 5238  032050  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
 5239  032054  013762  002010  000010          MOV     CONFIG,RKCS2(R2)        ;WRITE RKCS2
 5240  032062  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;STORE RKCS2
 5241  032070  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
 5242  032076  042737  177600  001124          BIC     #DLT!WCE!UPE!NED!NEM!PGE!MDS!UFE!OR,$GDDAT
 5243  032104  052737  000100  001124          BIS     #IR,$GDDAT      ;INITIALIZE READ ONLY BITS
 5244  032112  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKCS2 CORRECT
 5245  032120  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
 5246  032122  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
 5247  032130  104003                          ERROR   3
 5248  032132                          2$:
 5249  032132  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
 5250  032140  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
 5251  032146  001407                          BEQ     3$              ;YES, CONTINUE
 5252  032150  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
 5253  032156  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 5254  032164  104003                          ERROR   3
 5255  032166                          3$:
 5256  032166  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
 5257  032174  001406                          BEQ     4$              ;CHECK IF ZERO
 5258  032176  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
```

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 5259  032202  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 5260  032210  104003                          ERROR   3
 5261  032212                          4$:
 5262  032212  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
 5263  032220  001406                          BEQ     5$              ;CHECK IF ZERO
 5264  032222  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5265  032226  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
 5266  032234  104003                          ERROR   3
 5267  032236                          5$:
 5268  032236  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
 5269  032244  001406                          BEQ     6$              ;CHECK IF ZERO
 5270  032246  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5271  032252  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 5272  032260  104003                          ERROR   3
 5273  032262                          6$:
 5274  032262  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 5275  032270  001406                          BEQ     7$              ;CHECK IF ZERO
 5276  032272  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5277  032276  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 5278  032304  104003                          ERROR   3
 5279  032306                          7$:
 5280  032306  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 5281  032314  001406                          BEQ     9$              ;CHECK IF ZERO
 5282  032316  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5283  032322  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 5284  032330  104003                          ERROR   3
 5285  032332  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 5286  032340  001406                          BEQ     10$             ;CHECK IF ZERO
 5287  032342  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5288  032346  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 5289  032354  104003                          ERROR   3
 5290  032356                          10$:
 5291  032356  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 5292  032364  001406                          BEQ     12$             ;CHECK IF ZERO
 5293  032366  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5294  032372  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 5295  032400  104003                          ERROR   3
 5296  032402                          12$:
 5297  032402  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 5298  032410  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 5299  032416  032737  020000  001126          BIT     #ECCW,$BDDAT
 5300  032424  001403                          BEQ     13$
 5301  032426  052737  020000  001124          BIS     #ECCW,$GDDAT
 5302  032434  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 5303  032442  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
 5304  032444  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 5305  032452  104003                          ERROR   3
 5306  032454                          14$:
 5307  032454  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 5308  032462  001406                          BEQ     15$             ;CHECK IF ZERO
 5309  032464  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5310  032470  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 5311  032476  104003                          ERROR   3
 5312  032500  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
 5313  032506  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
 5314  032514  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
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                                        BEQ     18$                     ;YES,INITIALIZE RK611
                                        MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
                                        ERROR   3
                                18$:    MOV     RKCS2(R2),PREREG                ;GET PREVIOUS CONTENTS
                                        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
                                        MOV     RKCS2(R2),$BDDAT                ;GET CURRENT VALUE
                                        MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
                                        CMP     $GDDAT,$BDDAT           ;CHECK IF RKCS2 CORRECT
                                        BEQ     19$                     ;YES, CHECK IF FINISHED
                                        MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
                                        MOV     #EM1004,EM4N+2
                                        ERROR   4
                                19$:    SCOP1                           ;CHECK IF LOOP ON ERROR
                                        SEC                             ;SHIFT IN ONE
                                        ROR     CONFG1
                                        MOV     CONFG1,CONFIG           ;MAKE SURE SUBSYSTEM CLEAR
                                        BIC     #SCLR,CONFIG            ;  DOES NOT SET
                                        DEC     R1                      ;CHECK IF FINISHED
                                        BEQ     TST41                   ;;YES, GO ON TO NEXT TEST
                                        JMP     1$

                                ;;*****************************************************************
                                ;*TEST 41       CHECK SUBSYSTEM CLEAR WITH BUS ADDRESS
                                ;*
                                ;*      THIS TEST WILL TEST THE ABILITY OF THE SUBSYSTEM CLEAR TO
                                ;*      INITIALIZE THE BUS ADDRESS REGISTER AND COMMAND
                                ;*      AND STATUS REGISTER 1.  IT WILL ALSO VERIFY THAT ALL
                                ;*      OTHER REGISTERS REMAIN IN THE INITIALIZED STATE.
                                ;*
                                ;;*****************************************************************
                                TST41:  SCOPE
                                        MOV     #500.,$TIMES            ;;DO 500. ITERATIONS
                                        MOV     $BASE,R2                ;LOAD RK611 BASE
                                        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
                                        CLR     RKWC(R2)                ;CLEAR WORD COUNT REG
                                        MOV     #177776,RKBA(R2) ;WRITE WORD COUNT REG.
                                        MOV     #013776,RKCS1(R2) ;WRITE COMMAND AND STATUS REG 1
                                        MOV     #SCLR,RKCS2(R2) ;ISSUE A SUBSYSTEM CLEAR
                                        MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS REG.
                                        BEQ     1$                      ;CHECK IF ZERO
                                        MOV     #177776,PREREG          ;LOAD PREVIOUS CONTENTS
                                        CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
                                        MOV     #EM21,EM4N              ;LOAD ERROR MESSAGE
                                        MOV     #EM1002,EM4N
                                        ERROR   4
                                1$:     MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
                                        CMP     #RDY,$BDDAT             ;CHECK IF CS1 CORRECT
                                        BEQ     2$                      ;YES, CHECK IF ALL OTHER REGISTER
                                                                        ;  IN INITIALIZE STATE
                                        MOV     #013776,PREREG          ;LOAD PREVIOUS CONTENTS
                                        MOV     #RDY,$GDDAT             ;LOAD EXPECTED CONTENTS
                                        MOV     #EM22,EM4N;             LOAD ERROR MESSAGE
                                        MOV     #EM1002,EM4N+2
                                        ERROR   4
                                2$:     MOV     #EM23,EM2N              ;LOAD ERROR MESSAGE
                                        MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
```

```
                                ;CHECK SUBSYSTEM CLEAR WITH BUS ADDRESS

5371   023042  001406                    BEQ     3$                  ;CHECK IF ZERO
5372   033044  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
5373   033050  012737  066612  001312    MOV     #EM1001,EM2N+2      ;LOAD ERROR MESSAGE
5374   033056  104002                    ERROR   2
5375   033060  016237  000006  001126  3$: MOV     RKDA(R2),$BDDAT     ;STORE DISK ADDRESS REG.
5376   033066  001406                    BEQ     4$                  ;CHECK IF ZERO
5377   033070  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
5378   033074  012737  066661  001312    MOV     #EM1003,EM2N+2      ;LOAD ERROR MESSAGE
5379   033102  104002                    ERROR   2
5380   033104  016237  000016  001126  4$: MOV     RKASOF(R2),$BDDAT   ;STORE ATTENTION SUMMARY AND OFFSET REG.
5381   033112  001406                    BEQ     5$                  ;CHECK IF ZERO
5382   033114  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
5383   033120  012737  067001  001312    MOV     #EM1007,EM2N+2      ;LOAD ERROR MESSAGE
5384   033126  104002                    ERROR   2
5385   033130  016237  000010  001126  5$: MOV     RKCS2(R2),$BDDAT    ;STORE COMMAND AND STATUS REG.2
5386   033136  022737  000100  001126    CMP     #IR,$BDDAT          ;CHECK IF CS2 CORRECT
5387   033144  001407                    BEQ     6$                  ;YES, CONTINUE
5388   033146  012737  000100  001124    MOV     #IR,$GDDAT          ;LOAD EXPECTED CONTENTS
5389   033154  012737  066704  001312    MOV     #EM1004,EM2N+2      ;LOAL ERROR MESSAGE
5390   033162  104002                    ERROR   2
5391   033164  016237  000012  001126  6$: MOV     RKDS(R2),$BDDAT     ;STORE DRIVE STATUS REG.
5392   033172  001406                    BEQ     7$                  ;CHECK IF ZERO
5393   033174  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
5394   033200  012737  066722  001312    MOV     #EM1005,EM2N+2      ;LOAD ERROR MESSAGE
5395   033206  104002                    ERROR   2
5396   033210  016237  000014  001126  7$: MOV     RKER(R2),$BDDAT     ;STORE ERROR REGISTER
5397   033216  001406                    BEQ     8$                  ;CHECK IF ZERO
5398   033220  005037  001126            CLR     $BDDAT              ;LOAD EXPECTED CONTENTS
5399   033224  012737  066755  001312    MOV     #EM1006,EM2N+2      ;LOAD ERROR MESSAGE
5400   033232  104002                    ERROR   2
5401   033234  016237  000020  001126  8$: MOV     RKDCYL(R2),$BDDAT   ;STORE CYLINDER ADD REG.
5402   033242  001406                    BEQ     10$                 ;CHECK IF ZERO
5403   033244  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
5404   033250  012737  067272  001312    MOV     #EM1016,EM2N+2      ;LOAD ERROR MESSAGE
5405   033256  104002                    ERROR   2
5406   033260  016237  000026  001126 10$: MOV     RKMR1(R2),$BDDAT    ;STORE CYLINDER ADD REG.
5407   033266  012737  002000  001124    MOV     #MEWD,$GDDAT        ;LOAD EXPECTED MR1
5408   033274  032737  020000  001126    BIT     #ECCW,$BDDAT
5409   033302  001403                    BEQ     11$
5410   033304  052737  020000  001124    BIS     #ECCW,$GDDAT
5411   033312  023737  001124  001126 11$: CMP     $GDDAT,$BDDAT       ;CHECK IF MR1 CORRECT
5412   033320  001404                    BEQ     12$                 ;YES, CONTINUE TEST
5413   033322  012737  067072  001312    MOV     #EM1009,EM2N+2      ;LOAD ERROR MESSAGE
5414   033330  104002                    ERROR   2
5415   033332  016237  000032  001126 12$: MOV     RKECPT(R2),$BDDAT   ;STORE ECC PATTERN REG.
5416   033340  001406                    BEQ     13$                 ;CHECK IF ZERO
5417   033342  005037  001124            CLR     $GDDAT              ;LOAD EXPECTED RESULTS
5418   033346  012737  067142  001312    MOV     #EM1013,EM2N+2      ;LOAD ERROR MESSAGE
5419   033354  104002                    ERROR   2
5420   033356  016237  000030  001126 13$: MOV     RKECPS(R2),$BDDAT   ;STORE ECC POSITION REG.
5421   033364  022737  004066  001126    CMP     #4066,$BDDAT        ;CHECK IF ECC POSITION CORRECT
5422   033372  001407                    BEQ     TST42               ;;YES,GO TO NEXT TEST
5423   033374  012737  004066  001124    MOV     #4066,$GDDAT        ;LOAD EXPECTED RESULTS
5424   033402  012737  067120  001312    MOV     #EM1012,EM2N+2      ;LOAD ERROR MESSAGE
5425   033410  104002                    ERROR   2
5426                          ;;*****************************************************************
```

```
                                        ;*TEST 42       REGISTER INTERACTION USING DRIVE STATUS
                                        ;*
                                        ;*      ISSUE A CONTROLLER CLEAR TO ININITALIZE RK611 REGISTERS.
                                        ;*      WRITE WORD COUNT TO 0, WRITE DRIVE STATUS REGISTER
                                        ;*      WITH 177777 AND MAKE SURE IT REMAINS 0 AND NO
                                        ;*      INTERACTION TAKES PLACE.
                                        ;*
                                        ;*************************************************************************
033412  000004                          TST42:  SCOPE
033414  012737  000764  001200                  MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
033422  013702  001270                          MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
033426  012737  177777  002010                  MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
033434  012737  064015  001320                  MOV     #EM10,EM3N      ;LOAD ERROR MESSAGE
033442  012762  100000  000000                  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
033450  005062  000002                          CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
033454  012762  177777  000012                  MOV     #177777,RKDS(R2) ;WRITE RKDS WITH 177777
033462  016237  000000  001126                  MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
033470  022737  000200  001126                  CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
033476  001407                                  BEQ     1$              ;YES,CONTINUE
033500  012737  000200  001124                  MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
033506  012737  067314  001322                  MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
033514  104003                                  ERROR   3
033516  016237  000004  001126  1$:             MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
033524  001406                                  BEQ     2$              ;CHECK IF ZERO
033526  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
033532  012737  067365  001322                  MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
033540  104003                                  ERROR   3
033542  016237  000002  001126  2$:             MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
033550  001406                                  BEQ     3$              ;CHECK IF ZERO
033552  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
033556  012737  067335  001322                  MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
033564  104003                                  ERROR   3
033566  016237  000006  001126  3$:             MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
033574  001406                                  BEQ     4$              ;CHECK IF ZERO
033576  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
033602  012737  067412  001322                  MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
033610  104003                                  ERROR   3
033612  016237  000016  001126  4$:             MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
033620  001406                                  BEQ     5$              ;CHECK IF ZERO
033622  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
033626  012737  067556  001322                  MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
033634  104003                                  ERROR   3
033636  016237  000010  001126  5$:             MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
033644  022737  000100  001126                  CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
033652  001407                                  BEQ     6$              ;YES,CONTINUE
033654  012737  000100  001124                  MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
033662  012737  067450  001322                  MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
033670  104003                                  ERROR   3
033672  016237  000012  001126  6$:             MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
033700  001406                                  BEQ     7$              ;CHECK IF ZERO
033702  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
033706  012737  067471  001322                  MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
033714  104003                                  ERROR   3
033716  016237  000014  001126  7$:             MOV     RKER(R2),$BDDAT ;STORE ERROR REG
033724  001406                                  BEQ     8$              ;CHECK IF ZERO
033726  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
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 5483  033732  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 5484  033740  104003                          ERROR   3
 5485  033742  016237  000020  001126  8$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
 5486  033750  001406                          BEQ     10$             ;CHECK IF ZERO
 5487  033752  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
 5488  033756  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 5489  033764  104003                          ERROR   3
 5490  033766  016237  000026  001126  10$:    MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
 5491  033774  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
 5492  034002  032737  020000  001126          BIT     #ECCW,$BDDAT
 5493  034010  001403                          BEQ     11$
 5494  034012  052737  020000  001124          BIS     #ECCW,$GDDAT
 5495  034020  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 5496  034026  001404                          BEQ     12$             ;YES,CONTINUE TEST
 5497  034030  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 5498  034036  104003                          ERROR   3
 5499  034040  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 5500  034046  001406                          BEQ     13$             ;CHECK IF ZERO
 5501  034050  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5502  034054  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 5503  034062  104003                          ERROR   3
 5504  034064  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
 5505  034072  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
 5506  034100  001407                          BEQ     TST43           ;;YES,GO TO NEXT TEST
 5507  034102  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
 5508  034110  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
 5509  034116  104003                          ERROR   3
 5510
 5511                                  ;;*****************************************************************
 5512                                  ;*TEST 43       REGISTER INTERACTION USING ERROR REGISTER
 5513                                  ;*
 5514                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
 5515                                  ;*      WRITE THE WORD COUNT REGISTER TO ZERO, WRITE ERROR REGISTER
 5516                                  ;*      WITH 177777 AND MAKE SURE IT REMAINS 0 AND NO
 5517                                  ;*      INTERACTION TAKES PLACE.
 5518                                  ;*
 5519                                  ;*****************************************************************
 5520  034120  000004                  TST43:  SCOPE
 5521  034122  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
 5522  034130  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
 5523  034134  012737  177777  002010          MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
 5524  034142  012737  064062  001320          MOV     #EM11,EM3N      ;LOAD ERROR MESSAGE
 5525  034150  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
 5526  034156  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
 5527  034162  012762  177777  000014          MOV     #177777,RKER(R2) ;WRITE RKER WITH 177777
 5528  034170  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
 5529  034176  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
 5530  034204  001407                          BEQ     1$              ;YES,CONTINUE
 5531  034206  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
 5532  034214  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 5533  034222  104003                          ERROR   3
 5534  034224  016237  000004  001126  1$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
 5535  034232  001406                          BEQ     2$              ;CHECK IF ZERO
 5536  034234  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 5537  034240  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 5538  034246  104003                          ERROR   3
```

```
5539  034250  016237  000002  001126  2$:     MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
5540  034256  001406                          BEQ     3$              ;CHECK IF ZERO
5541  034260  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5542  034264  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
5543  034272  104003                          ERROR   3
5544  034274  016237  000006  001126  3$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
5545  034302  001406                          BEQ     4$              ;CHECK IF ZERO
5546  034304  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5547  034310  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
5548  034316  104003                          ERROR   3
5549  034320  016237  000016  001126  4$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
5550  034326  001406                          BEQ     5$              ;CHECK IF ZERO
5551  034330  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5552  034334  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
5553  034342  104003                          ERROR   3
5554  034344  016237  000010  001126  5$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
5555  034352  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
5556  034360  001407                          BEQ     6$              ;YES,CONTINUE
5557  034362  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
5558  034370  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
5559  034376  104003                          ERROR   3
5560  034400  016237  000012  001126  6$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
5561  034406  001406                          BEQ     7$              ;CHECK IF ZERO
5562  034410  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5563  034414  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
5564  034422  104003                          ERROR   3
5565  034424  016237  000014  001126  7$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5566  034432  001406                          BEQ     8$              ;CHECK IF ZERO
5567  034434  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5568  034440  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5569  034446  104003                          ERROR   3
5570  034450  016237  000020  001126  8$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
5571  034456  001406                          BEQ     10$             ;CHECK IF ZERO
5572  034460  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
5573  034464  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
5574  034472  104003                          ERROR   3
5575  034474  016237  000026  001126  10$:    MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
5576  034502  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
5577  034510  032737  020000  001126          BIT     #ECCW,$BDDAT
5578  034516  001403                          BEQ     11$
5579  034520  052737  020000  001124          BIS     #ECCW,$GDDAT
5580  034526  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5581  034534  001404                          BEQ     12$             ;YES,CONTINUE TEST
5582  034536  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
5583  034544  104003                          ERROR   3
5584  034546  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5585  034554  001406                          BEQ     13$             ;CHECK IF ZERO
5586  034556  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5587  034562  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
5588  034570  104003                          ERROR   3
5589  034572  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
5590  034600  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
5591  034606  001407                          BEQ     TST44           ;;YES,GO TO NEXT TEST
5592  034610  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
5593  034616  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
5594  034624  104003                          ERROR   3
```

```
                                ;;*****************************************************************
                                ;*TEST 44        REGISTER INTERACTION USING MAINT REG 2
                                ;*
                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                                ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
                                ;*      REGISTER 2 TO 177777 AND NO INTERACTION TAKES PLACE.
                                ;*
                                ;*****************************************************************
034626  000004                TST44:  SCOPE
034630  012737  000764  001200        MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
034636  013702  001270                MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
034642  012737  177777  002010        MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
034650  012737  064120  001320        MOV     #EM12,EM3N      ;LOAD ERROR MESSAGE
034656  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
034664  005062  000002                CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
034670  012762  177777  000034        MOV     #177777,RKMR2(R2) ;WRITE RKMR2 WITH 177777
034676  016237  000000  001126        MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
034704  022737  000200  001126        CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
034712  001407                        BEQ     1$              ;YES,CONTINUE
034714  012737  000200  001124        MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
034722  012737  067314  001322        MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
034730  104003                        ERROR   3
034732  016237  000004  001126  1$:   MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
034740  001406                        BEQ     2$              ;CHECK IF ZERO
034742  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
034746  012737  067365  001322        MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
034754  104003                        ERROR   3
034756  016237  000002  001126  2$:   MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
034764  001406                        BEQ     3$              ;CHECK IF ZERO
034766  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
034772  012737  067335  001322        MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
035000  104003                        ERROR   3
035002  016237  000006  001126  3$:   MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
035010  001406                        BEQ     4$              ;CHECK IF ZERO
035012  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
035016  012737  067412  001322        MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
035024  104003                        ERROR   3
035026  016237  000016  001126  4$:   MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
035034  001406                        BEQ     5$              ;CHECK IF ZERO
035036  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
035042  012737  067556  001322        MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
035050  104003                        ERROR   3
035052  016237  000010  001126  5$:   MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
035060  022737  000100  001126        CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
035066  001407                        BEQ     6$              ;YES,CONTINUE
035070  012737  000100  001124        MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
035076  012737  067450  001322        MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
035104  104003                        ERROR   3
035106  016237  000012  001126  6$:   MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
035114  001406                        BEQ     7$              ;CHECK IF ZERO
035116  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
035122  012737  067471  001322        MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
035130  104003                        ERROR   3
035132  016237  000014  001126  7$:   MOV     RKER(R2),$BDDAT ;STORE ERROR REG
035140  001406                        BEQ     8$              ;CHECK IF ZERO
```

```
5651   035142  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5652   035146  012737  067527  001322                MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5653   035154  104003                                ERROR   3
5654   035156  016237  000020  001126  8$:           MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
5655   035164  001406                                BEQ     10$             ;CHECK IF ZERO
5656   035166  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED RESULTS
5657   035172  012737  067624  001322                MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
5658   035200  104003                                ERROR   3
5659   035202  016237  000026  001126  10$:          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
5660   035210  012737  002000  001124                MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
5661   035216  032737  020000  001126                BIT     #ECCW,$BDDAT
5662   035224  001403                                BEQ     11$
5663   035226  052737  020000  001124                BIS     #ECCW,$GDDAT
5664   035234  023737  001124  001126  11$:          CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5665   035242  001404                                BEQ     12$             ;YES,CONTINUE TEST
5666   035244  012737  067651  001322                MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
5667   035252  104003                                ERROR   3
5668   035254  016237  000032  001126  12$:          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5669   035262  001406                                BEQ     13$             ;CHECK IF ZERO
5670   035264  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5671   035270  012737  067727  001322                MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
5672   035276  104003                                ERROR   3
5673   035300  016237  000030  001126  13$:          MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
5674   035306  022737  004066  001126                CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
5675   035314  001407                                BEQ     TST45           ;;YES,GO TO NEXT TEST
5676   035316  012737  004066  001124                MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
5677   035324  012737  067702  001322                MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
5678   035332  104003                                ERROR   3
5679
5680                                        ;;*****************************************************************
5681                                        ;*TEST 45       REGISTER INTERACTION USING MAINT REG 3
5682                                        ;*
5683                                        ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
5684                                        ;*      WRITE THE WORD COUNT REGISTER TO ZERO, WRITE MAINTENANCE
5685                                        ;*      REGISTER 3 TO 177777 AND NO INTERACTION TAKES PLACE.
5686                                        ;*
5687                                        ;*****************************************************************
5688   035334  000004                        TST45:  SCOPE
5689   035336  012737  000764  001200                MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
5690   035344  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
5691   035350  012737  177777  002010                MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
5692   035356  012737  064160  001320                MOV     #EM13,EM3N      ;LOAD ERROR MESSAGE
5693   035364  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
5694   035372  005062  000002                        CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
5695   035376  012762  177777  000036                MOV     #177777,RKMR3(R2) ;WRITE RKMR3 WITH 177777
5696   035404  016237  000000  001126                MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
5697   035412  022737  000200  001126                CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
5698   035420  001407                                BEQ     1$              ;YES,CONTINUE
5699   035422  012737  000200  001124                MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
5700   035430  012737  067314  001322                MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
5701   035436  104003                                ERROR   3
5702   035440  016237  000004  001126  1$:           MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
5703   035446  001406                                BEQ     2$              ;CHECK IF ZERO
5704   035450  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5705   035454  012737  067365  001322                MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
5706   035462  104003                                ERROR   3
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5707  035464  016237  000002  001126  2$:     MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
5708  035470  001406                          BEQ     3$              ;CHECK IF ZERO
5709  035472  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5710  035500  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
5711  035506  104003                          ERROR   3
5712  035510  016237  000006  001126  3$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
5713  035516  001406                          BEQ     4$              ;CHECK IF ZERO
5714  035520  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5715  035524  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
5716  035532  104003                          ERROR   3
5717  035534  016237  000016  001126  4$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
5718  035542  001406                          BEQ     5$              ;CHECK IF ZERO
5719  035544  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5720  035550  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
5721  035556  104003                          ERROR   3
5722  035560  016237  000010  001126  5$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
5723  035566  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
5724  035574  001407                          BEQ     6$              ;YES,CONTINUE
5725  035576  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
5726  035604  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
5727  035612  104003                          ERROR   3
5728  035614  016237  000012  001126  6$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
5729  035622  001406                          BEQ     7$              ;CHECK IF ZERO
5730  035624  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5731  035630  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
5732  035636  104003                          ERROR   3
5733  035640  016237  000014  001126  7$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5734  035646  001406                          BEQ     8$              ;CHECK IF ZERO
5735  035650  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5736  035654  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5737  035662  104003                          ERROR   3
5738  035664  016237  000020  001126  8$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
5739  035672  001406                          BEQ     10$             ;CHECK IF ZERO
5740  035674  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
5741  035700  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
5742  035706  104003                          ERROR   3
5743  035710  016237  000026  001126  10$:    MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
5744  035716  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
5745  035724  032737  020000  001126          BIT     #ECCW,$BDDAT
5746  035732  001403                          BEQ     11$
5747  035734  052737  020000  001124          BIS     #ECCW,$GDDAT
5748  035742  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5749  035750  001404                          BEQ     12$             ;YES,CONTINUE TEST
5750  035752  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
5751  035760  104003                          ERROR   3
5752  035762  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5753  035770  001406                          BEQ     13$             ;CHECK IF ZERO
5754  035772  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5755  035776  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
5756  036004  104003                          ERROR   3
5757  036006  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
5758  036014  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
5759  036022  001407                          BEQ     TST46           ;;YES,GO TO NEXT TEST
5760  036024  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
5761  036032  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
5762  036040  104003                          ERROR   3
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```
                                ;;*****************************************************************
                                ;*TEST 46       REGISTER INTERACTION WITH DISK CYLINDER (PART 1)
                                ;*
                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                                ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
                                ;*      CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
                                ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
                                ;*
                                ;*      000000  000010  000200  004000  100000
                                ;*      000001  000020  000400  010000
                                ;*      000002  000040  001000  020000
                                ;*      000004  000100  002000  040000
                                ;*
                                ;*****************************************************************
036042  000004                  TST46:  SCOPE
036044  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
036052  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
036056  012737  000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
036064  012737  064456  001320          MOV     #EM19,EM3N      ;LOAD ERROR MESSAGE
036072  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
036100  012737  036106  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
036106                          1$:
036106  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
036112  013762  002010  000020          MOV     CONFIG,RKDCYL(R2)       ;WRITE RKDCYL
036120  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;STORE RKDCYL
036126  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
036134  042737  176000  001124          BIC     #176000,$GDDAT  ;INITIALIZE READ ONLY BITS
036142  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
036150  001404                          BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
036152  012737  067272  001322          MOV     #EM1016,EM3N+2  ;LOAD ERROR MESSAGE
036160  104003                          ERROR   3
036162                          2$:
036162  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
036170  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
036176  001407                          BEQ     3$              ;YES, CONTINUE
036200  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
036206  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
036214  104003                          ERROR   3
036216                          3$:
036216  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
036224  001406                          BEQ     4$              ;CHECK IF ZERO
036226  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
036232  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
036240  104003                          ERROR   3
036242                          4$:
036242  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
036250  001406                          BEQ     5$              ;CHECK IF ZERO
036252  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
036256  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
036264  104003                          ERROR   3
036266                          5$:
036266  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
036274  001406                          BEQ     6$              ;CHECK IF ZERO
```

```
5819  036276  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5820  036302  012737  067412  001322          MOV     #EM1020,EM3N+2          ;LOAD ERROR MESSAGE
5821  036310  104003                          ERROR   3
5822  036312                          6$:
5823  036312  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
5824  036320  001406                          BEQ     7$                      ;CHECK IF ZERO
5825  036322  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5826  036326  012737  067556  001322          MOV     #EM1024,EM3N+2          ;LOAD ERROR MESSAGE
5827  036334  104003                          ERROR   3
5828  036336                          7$:
5829  036336  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
5830  036344  022737  000100  001126          CMP     #IR,$BDDAT              ;CHECK IF CS2 CORRECT
5831  036352  001407                          BEQ     8$                      ;YES,CONTINUE
5832  036354  012737  000100  001124          MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
5833  036362  012737  067450  001322          MOV     #EM1021,EM3N+2          ;LOAD ERROR MESSAGE
5834  036370  104003                          ERROR   3
5835  036372                          8$:
5836  036372  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
5837  036400  001406                          BEQ     9$                      ;CHECK IF ZERO
5838  036402  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5839  036406  012737  067471  001322          MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
5840  036414  104003                          ERROR   3
5841  036416  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5842  036424  001406                          BEQ     10$                     ;CHECK IF ZERO
5843  036426  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5844  036432  012737  067527  001322          MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
5845  036440  104003                          ERROR   3
5846  036442                          10$:
5847  036442  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
5848  036450  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
5849  036456  032737  020000  001126          BIT     #ECCW,$BDDAT
5850  036464  001403                          BEQ     13$
5851  036466  052737  020000  001124          BIS     #ECCW,$GDDAT
5852  036474  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5853  036502  001404                          BEQ     14$                     ;YES,ISSUE CONTROLLER CLEAR
5854  036504  012737  067651  001322          MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
5855  036512  104003                          ERROR   3
5856  036514                          14$:
5857  036514  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5858  036522  001406                          BEQ     15$                     ;CHECK IF ZERO
5859  036524  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5860  036530  012737  067727  001322          MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
5861  036536  104003                          ERROR   3
5862  036540  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
5863  036546  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
5864  036554  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
5865  036562  001404                          BEQ     18$                     ;YES,INITIALIZE RK611
5866  036564  012737  067702  001322          MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
5867  036572  104003                          ERROR   3
5868  036574  016237  000020  002014  18$:    MOV     RKDCYL(R2),PREREG       ;GET PREVIOUS CONTENTS
5869  036602  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
5870  036610  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;GET CURRENT VALUE
5871  036616  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
5872  036622  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
5873  036630  001407                          BEQ     19$                     ;YES, CHECK IF FINISHED
5874  036632  012737  063403  001330          MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
```

```
5875  036640  012737  067272  001332          MOV     #EM1016,EM4N+2
5876  036646  104004                          ERROR   4
5877  036650  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
5878  036652  000241                          CLC                     ;SHIFT IN ZERO
5879  036654  006137  002010                  ROL     CONFIG
5880  036660  005301                          DEC     R1              ;CHECK IF FINISHED
5881  036662  001402                          BEQ     TST47           ;;YES, GO ON TO NEXT TEST
5882  036664  000137  036106                  JMP     1$
5883
5884                                  ;;*****************************************************************
5885                                  ;*TEST 47       REGISTER INTERACTION WITH DISK CYLINDER (PART 2)
5886                                  ;*
5887                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
5888                                  ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
5889                                  ;*      CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
5890                                  ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
5891                                  ;*
5892                                  ;*      177777  177767  177577  173777  077777
5893                                  ;*      177776  177757  177377  167777
5894                                  ;*      177775  177737  176777  157777
5895                                  ;*      177773  177677  175777  137777
5896                                  ;*
5897                                  ;*****************************************************************
5898  036670  000004                  TST47:  SCOPE
5899  036672  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
5900  036700  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
5901  036704  012737  177776  002010          MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
5902  036712  012737  064456  001320          MOV     #EM19,EM3N      ;LOAD ERROR MESSAGE
5903  036720  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
5904  036726  012737  036734  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
5905                                                                  ;  SUBTEST LOOP
5906
5907  036734                          1$:
5908  036734  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
5909  036740  013762  002010  000020          MOV     CONFIG,RKDCYL(R2)       ;WRITE RKDCYL
5910  036746  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;STORE RKDCYL
5911  036754  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
5912  036762  042737  176000  001124          BIC     #176000,$GDDAT  ;INITIALIZE READ ONLY BITS
5913  036770  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
5914  036776  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
5915  037000  012737  067272  001322          MOV     #EM1016,EM3N+2  ;LOAD ERROR MESSAGE
5916  037006  104003                          ERROR   3
5917  037010                          2$:
5918  037010  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
5919  037016  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
5920  037024  001407                          BEQ     3$              ;YES, CONTINUE
5921  037026  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
5922  037034  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
5923  037042  104003                          ERROR   3
5924  037044                          3$:
5925  037044  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
5926  037052  001406                          BEQ     4$              ;CHECK IF ZERO
5927  037054  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5928  037060  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
5929  037066  104003                          ERROR   3
5930  037070                          4$:
```

```
5931  037070  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
5932  037076  001406                          BEQ     5$              ;CHECK IF ZERO
5933  037100  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5934  037104  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
5935  037112  104003                          ERROR   3
5936  037114                          5$:
5937  037114  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
5938  037122  001406                          BEQ     6$              ;CHECK IF ZERO
5939  037124  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5940  037130  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
5941  037136  104003                          ERROR   3
5942  037140                          6$:
5943  037140  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
5944  037146  001406                          BEQ     7$              ;CHECK IF ZERO
5945  037150  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5946  037154  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
5947  037162  104003                          ERROR   3
5948  037164                          7$:
5949  037164  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
5950  037172  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
5951  037200  001407                          BEQ     8$              ;YES,CONTINUE
5952  037202  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
5953  037210  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
5954  037216  104003                          ERROR   3
5955  037220                          8$:
5956  037220  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
5957  037226  001406                          BEQ     9$              ;CHECK IF ZERO
5958  037230  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5959  037234  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
5960  037242  104003                          ERROR   3
5961  037244  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
5962  037252  001406                          BEQ     10$             ;CHECK IF ZERO
5963  037254  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5964  037260  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
5965  037266  104003                          ERROR   3
5966  037270                          10$:
5967  037270  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
5968  037276  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
5969  037304  032737  020000  001126          BIT     #ECCW,$BDDAT
5970  037312  001403                          BEQ     13$
5971  037314  052737  020000  001124          BIS     #ECCW,$GDDAT
5972  037322  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
5973  037330  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
5974  037332  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
5975  037340  104003                          ERROR   3
5976  037342                          14$:
5977  037342  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
5978  037350  001406                          BEQ     15$             ;CHECK IF ZERO
5979  037352  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
5980  037356  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
5981  037364  104003                          ERROR   3
5982  037366  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
5983  037374  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
5984  037402  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
5985  037410  001404                          BEQ     18$             ;YES,INITIALIZE RK611
5986  037412  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
```

```
                                        ERROR   3
037420  104003                          
037422  016237  000020  002014  18$:    MOV     RKDCYL(R2),PREREG       ;GET PREVIOUS CONTENTS
037430  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
037436  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;GET CURRENT VALUE
037444  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
037450  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
037456  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
037460  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
037466  012737  067272  001332          MOV     #EM1016,EM4N+2
037474  104004                          ERROR   4
037476  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
037500  000261                          SEC                     ;SHIFT IN ONE
037502  006137  002010                  ROL     CONFIG
037506  005301                          DEC     R1              ;CHECK IF FINISHED
037510  001402                          BEQ     TST50           ;;YES, GO ON TO NEXT TEST
037512  000137  036734                  JMP     1$

                                ;;*****************************************************************
                                ;*TEST 50       REGISTER INTERACTION WITH DISK CYLINDER (PART 3)
                                ;*
                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
                                ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
                                ;*      CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
                                ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
                                ;*
                                ;*      000001  000037  000777  017777  000000
                                ;*      000003  000077  001777  037777
                                ;*      000007  000177  003777  077777
                                ;*      000017  000377  007777  177777
                                ;*
                                ;;*****************************************************************
037516  000004                  TST50:  SCOPE
037520  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
037526  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
037532  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
037536  012737  064456  001320          MOV     #EM19,EM3N      ;LOAD ERROR MESSAGE
037544  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
037552  012737  037560  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP

037560                          1$:
037560  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
037564  013762  002010  000020          MOV     CONFIG,RKDCYL(R2)       ;WRITE RKDCYL
037572  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;STORE RKDCYL
037600  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
037606  042737  176000  001124          BIC     #176000,$GDDAT  ;INITIALIZE READ ONLY BITS
037614  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
037622  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
037624  012737  067272  001322          MOV     #EM1016,EM3N+2  ;LOAD ERROR MESSAGE
037632  104003                          ERROR   3
037634                          2$:
037634  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
037642  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
037650  001407                          BEQ     3$              ;YES, CONTINUE
037652  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
037660  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
```

```
 6043  037666  104003                          ERROR   3
 6044  037670                          3$:
 6045  037670  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
 6046  037676  001406                          BEQ     4$              ;CHECK IF ZERO
 6047  037700  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6048  037704  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 6049  037712  104003                          ERROR   3
 6050  037714                          4$:
 6051  037714  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
 6052  037722  001406                          BEQ     5$              ;CHECK IF ZERO
 6053  037724  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6054  037730  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
 6055  037736  104003                          ERROR   3
 6056  037740                          5$:
 6057  037740  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
 6058  037746  001406                          BEQ     6$              ;CHECK IF ZERO
 6059  037750  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6060  037754  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 6061  037762  104003                          ERROR   3
 6062  037764                          6$:
 6063  037764  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 6064  037772  001406                          BEQ     7$              ;CHECK IF ZERO
 6065  037774  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6066  040000  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 6067  040006  104003                          ERROR   3
 6068  040010                          7$:
 6069  040010  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 6070  040016  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
 6071  040024  001407                          BEQ     8$              ;YES,CONTINUE
 6072  040026  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
 6073  040034  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
 6074  040042  104003                          ERROR   3
 6075  040044                          8$:
 6076  040044  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 6077  040052  001406                          BEQ     9$              ;CHECK IF ZERO
 6078  040054  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6079  040060  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 6080  040066  104003                          ERROR   3
 6081  040070  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
 6082  040076  001406                          BEQ     10$             ;CHECK IF ZERO
 6083  040100  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6084  040104  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 6085  040112  104003                          ERROR   3
 6086  040114                          10$:
 6087  040114  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
 6088  040122  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 6089  040130  032737  020000  001126          BIT     #ECCW,$BDDAT
 6090  040136  001403                          BEQ     13$
 6091  040140  052737  020000  001124          BIS     #ECCW,$GDDAT
 6092  040146  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 6093  040154  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
 6094  040156  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 6095  040164  104003                          ERROR   3
 6096  040166                          14$:
 6097  040166  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
 6098  040174  001406                          BEQ     15$             ;CHECK IF ZERO
```

```
                                        CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
                                        MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
                                        ERROR   3
                            15$:        MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
                            16$:        MOV     #4066,$GDDAT            ;USE 4066
                            17$:        CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
                                        BEQ     18$                     ;YES,INITIALIZE RK611
                                        MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
                                        ERROR   3
                            18$:        MOV     RKDCYL(R2),PREREG       ;GET PREVIOUS CONTENTS
                                        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
                                        MOV     RKDCYL(R2),$BDDAT       ;GET CURRENT VALUE
                                        CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
                                        CMP     $GDDAT,$BDDAT           ;CHECK IF RKDCYL CORRECT
                                        BEQ     19$                     ;YES, CHECK IF FINISHED
                                        MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
                                        MOV     #EM1016,EM4N+2
                                        ERROR   4
                            19$:        SCOP1                           ;CHECK IF LOOP ON ERROR
                                        SEC                             ;SHIFT IN ONE
                                        ROL     CONFIG
                                        DEC     R1                      ;CHECK IF FINISHED
                                        BEQ     TST51                   ;;YES, GO ON TO NEXT TEST
                                        JMP     1$

;;*****************************************************************
;*TEST 51        REGISTER INTERACTION WITH DISK CYLINDER (PART 4)
;*
;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE THE DISK
;*      CYLINDER ADDRESS WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
;*
;*      100000  174000  177600  177770  000000
;*      140000  176000  177700  177774
;*      160000  177000  177740  177776
;*      170000  177400  177760  177777
;*
;*****************************************************************
TST51:  SCOPE
                            MOV     #500.,$TIMES            ;;DO 500. ITERATIONS
                            MOV     #17.,R1                 ;LOAD NUMBER OF PATTERNS
                            CLR     CONFIG                  ;LOAD INITIAL CONFIGURATION
                            MOV     #EM19,EM3N              ;LOAD ERROR MESSAGE
                            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
                            MOV     #1$,$LPERR              ;LOAD LOOP ON ERROR LOCATION FOR
                                                            ;  SUBTEST LOOP

1$:
                            CLR     RKWC(R2)                ;CLEAR WORD COUNT REG.
                            MOV     CONFIG,RKDCYL(R2)               ;WRITE RKDCYL
                            MOV     RKDCYL(R2),$BDDAT               ;STORE RKDCYL
                            MOV     CONFIG,$GDDAT           ;PREPARE EXPECTED RESULTS
                            BIC     #176000,$GDDAT          ;INITIALIZE READ ONLY BITS
                            CMP     $GDDAT,$BDDAT           ;CHECK IF RKDCYL CORRECT
                            BEQ     2$                      ;YES,TEST IF ANY OTHER REG MODIFIED
```

```
6155  040450  012737  067272  001322          MOV     #EM1016,EM3N+2  ;LOAD ERROR MESSAGE
6156  040456  104003                          ERROR   3
6157  040460                          2$:
6158  040460  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
6159  040466  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
6160  040474  001407                          BEQ     3$              ;YES, CONTINUE
6161  040476  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
6162  040504  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
6163  040512  104003                          ERROR   3
6164  040514                          3$:
6165  040514  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
6166  040522  001406                          BEQ     4$              ;CHECK IF ZERO
6167  040524  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6168  040530  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
6169  040536  104003                          ERROR   3
6170  040540                          4$:
6171  040540  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
6172  040546  001406                          BEQ     5$              ;CHECK IF ZERO
6173  040550  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6174  040554  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
6175  040562  104003                          ERROR   3
6176  040564                          5$:
6177  040564  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
6178  040572  001406                          BEQ     6$              ;CHECK IF ZERO
6179  040574  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6180  040600  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
6181  040606  104003                          ERROR   3
6182  040610                          6$:
6183  040610  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
6184  040616  001406                          BEQ     7$              ;CHECK IF ZERO
6185  040620  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6186  040624  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
6187  040632  104003                          ERROR   3
6188  040634                          7$:
6189  040634  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
6190  040642  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
6191  040650  001407                          BEQ     8$              ;YES,CONTINUE
6192  040652  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
6193  040660  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
6194  040666  104003                          ERROR   3
6195  040670                          8$:
6196  040670  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
6197  040676  001406                          BEQ     9$              ;CHECK IF ZERO
6198  040700  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6199  040704  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
6200  040712  104003                          ERROR   3
6201  040714  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
6202  040722  001406                          BEQ     10$             ;CHECK IF ZERO
6203  040724  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6204  040730  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
6205  040736  104003                          ERROR   3
6206  040740                          10$:
6207  040740  016237  000026  001126          MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG.1
6208  040746  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
6209  040754  032737  020000  001126          BIT     #ECCW,$BDDAT
6210  040762  001403                          BEQ     13$
```

```
6211  040764  052737  020000  001124          BIS     #ECCW,$GDDAT
6212  040772  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
6213  041000  001404                          BEQ     14$             ;YES,ISSUE CONTROLLER CLEAR
6214  041002  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
6215  041010  104003                          ERROR   3
6216  041012                          14$:
6217  041012  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
6218  041020  001406                          BEQ     15$             ;CHECK IF ZERO
6219  041022  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6220  041026  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
6221  041034  104003                          ERROR   3
6222  041036  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
6223  041044  012737  004066  001124  16$:    MOV     #4066,$GDDAT    ;USE 4066
6224  041052  023737  001124  001126  17$:    CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
6225  041060  001404                          BEQ     18$             ;YES,INITIALIZE RK611
6226  041062  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
6227  041070  104003                          ERROR   3
6228  041072  016237  000020  002014  18$:    MOV     RKDCYL(R2),PREREG       ;GET PREVIOUS CONTENTS
6229  041100  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
6230  041106  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT       ;GET CURRENT VALUE
6231  041114  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6232  041120  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKDCYL CORRECT
6233  041126  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
6234  041130  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
6235  041136  012737  067272  001332          MOV     #EM1016,EM4N+2
6236  041144  104004                          ERROR   4
6237  041146  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
6238  041150  000261                          SEC                     ;SHIFT IN ONE
6239  041152  006037  002010                  ROR     CONFIG
6240  041156  005301                          DEC     R1              ;CHECK IF FINISHED
6241  041160  001402                          BEQ     TST52           ;;YES, GO ON TO NEXT TEST
6242  041162  000137  040404                  JMP     1$
6243
6244                                  ;;*****************************************************************
6245                                  ;*TEST 52       REGISTER INTERACTION USING MAINT REG 1 (PART 1)
6246                                  ;*
6247                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
6248                                  ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
6249                                  ;*      REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
6250                                  ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
6251                                  ;*
6252                                  ;*      000000  000010  000200  004000  100000
6253                                  ;*      000001  000020  000400  010000
6254                                  ;*      000002  000040  001000  020000
6255                                  ;*      000004  000100  002000  040000
6256                                  ;*
6257                                  ;*****************************************************************
6258  041166  000004          TST52:  SCOPE
6259  041170  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
6260  041176  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
6261  041202  012737  000001  002010          MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
6262  041210  012737  064517  001320          MOV     #EM20,EM3N      ;LOAD ERROR MESSAGE
6263  041216  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
6264  041224  012737  041232  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
6265                                                                  ;  SUBTEST LOOP
6266
```

```
 6267  041232                                  1$:
 6268  041232  005062  000002                  CLR     RKWC(R2)            ;CLEAR WORD COUNT REG.
 6269  041236  013762  002010  000026          MOV     CONFIG,RKMR1(R2)            ;WRITE RKMR1
 6270  041244  016237  000026  001126          MOV     RKMR1(R2),$BDDAT            ;STORE RKMR1
 6271  041252  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
 6272  041260  042737  174000  001124          BIC     #PCA!PCD!ECCW!WRTGAT!RDGATE,$GDDAT ;INITIALIZE READ ONLY BITS
 6273  041266  052737  002000  001124          BIS     #MEWD,$GDDAT
 6274  041274  032737  020000  001126          BIT     #ECCW,$BDDAT
 6275  041302  001403                          BEQ     30$
 6276  041304  052737  020000  001124          BIS     #ECCW,$GDDAT
 6277  041312                                  30$:
 6278  041312  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
 6279  041320  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
 6280  041322  012737  067072  001322          MOV     #EM1009,EM3N+2  ;LOAD ERROR MESSAGE
 6281  041330  104003                          ERROR   3
 6282  041332                                  2$:
 6283  041332  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
 6284  041340  022737  000200  001126          CMP     #RDY,$BDDAT             ;CHECK IF CS1 CORRECT
 6285  041346  001407                          BEQ     3$                      ;YES, CONTINUE
 6286  041350  012737  000100  001124          MOV     #IR,$GDDAT              ;LOAD EXPECTED RESULTS
 6287  041356  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 6288  041364  104003                          ERROR   3
 6289  041366                                  3$:
 6290  041366  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
 6291  041374  001406                          BEQ     4$              ;CHECK IF ZERO
 6292  041376  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6293  041402  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 6294  041410  104003                          ERROR   3
 6295  041412                                  4$:
 6296  041412  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
 6297  041420  001406                          BEQ     5$              ;CHECK IF ZERO
 6298  041422  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6299  041426  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
 6300  041434  104003                          ERROR   3
 6301  041436                                  5$:
 6302  041436  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
 6303  041444  001406                          BEQ     6$              ;CHECK IF ZERO
 6304  041446  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6305  041452  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 6306  041460  104003                          ERROR   3
 6307  041462                                  6$:
 6308  041462  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
 6309  041470  001406                          BEQ     7$              ;CHECK IF ZERO
 6310  041472  005037  001124                  CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6311  041476  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 6312  041504  104003                          ERROR   3
 6313  041506                                  7$:
 6314  041506  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
 6315  041514  022737  000100  001126          CMP     #IR,$BDDAT              ;CHECK IF CS2 CORRECT
 6316  041522  001407                          BEQ     8$                      ;YES,CONTINUE
 6317  041524  012737  000100  001124          MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
 6318  041532  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
 6319  041540  104003                          ERROR   3
 6320  041542                                  8$:
 6321  041542  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
 6322  041550  001406                          BEQ     9$              ;CHECK IF ZERO
```

```
 6323  041552  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6324  041556  012737  067471  001322            MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
 6325  041564  104003                            ERROR   3
 6326  041566  016237  000014  001126  9$:       MOV     RKER(R2),$BDDAT         ;STORE ERROR REG
 6327  041574  001406                            BEQ     10$                     ;CHECK IF ZERO
 6328  041576  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6329  041602  012737  067527  001322            MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
 6330  041610  104003                            ERROR   3
 6331  041612                          10$:
 6332  041612  016237  000020  001126            MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADD REG
 6333  041620  001406                            BEQ     12$                     ;CHECK IF ZERO
 6334  041622  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6335  041626  012737  067624  001322            MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
 6336  041634  104003                            ERROR   3
 6337  041636                          12$:
 6338  041636  016237  000032  001126            MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
 6339  041644  001406                            BEQ     15$                     ;CHECK IF ZERO
 6340  041646  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
 6341  041652  012737  067727  001322            MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
 6342  041660  104003                            ERROR   3
 6343  041662  016237  000030  001126  15$:      MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
 6344  041670  012737  004066  001124  16$:      MOV     #4066,$GDDAT            ;USE 4066
 6345  041676  023737  001124  001126  17$:      CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
 6346  041704  001404                            BEQ     18$                     ;YES,INITIALIZE RK611
 6347  041706  012737  067702  001322            MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
 6348  041714  104003                            ERROR   3
 6349  041716  016237  000026  002014  18$:      MOV     RKMR1(R2),PREREG                ;GET PREVIOUS CONTENTS
 6350  041724  012762  100000  000000            MOV     #CCLR,RKCS1(R2)         ;CLEAR RK611 CONTROLLER
 6351  041732  016237  000026  001126            MOV     RKMR1(R2),$BDDAT                ;GET CURRENT VALUE
 6352  041740  012737  002000  001124            MOV     #MEWD,$GDDAT            ;LOAD EXPECTED CONTENTS
 6353  041746  032737  020000  001126            BIT     #ECCW,$BDDAT
 6354  041754  001403                            BEQ     35$
 6355  041756  052737  020000  001124            BIS     #ECCW,$GDDAT
 6356  041764                          35$:
 6357  041764  023737  001124  001126            CMP     $GDDAT,$BDDAT           ;CHECK IF RKMR1 CORRECT
 6358  041772  001407                            BEQ     19$                     ;YES, CHECK IF FINISHED
 6359  041774  012737  063403  001330            MOV     #EM3,EM4N               ;LOAD ERROR MESSAGE
 6360  042002  012737  067072  001332            MOV     #EM1009,EM4N+2
 6361  042010  104004                            ERROR   4
 6362  042012  104415                  19$:      SCOP1                           ;CHECK IF LOOP ON ERROR
 6363  042014  000241                            CLC                             ;SHIFT IN ZERO
 6364  042016  006137  002010                    ROL     CONFIG
 6365  042022  005301                            DEC     R1                      ;CHECK IF FINISHED
 6366  042024  001402                            BEQ     TST53                   ;;YES, GO ON TO NEXT TEST
 6367  042026  000137  041232                    JMP     1$
 6368
 6369                          ;;*****************************************************************
 6370                          ;*TEST 53       REGISTER INTERACTION USING MAINT REG 1 (PART 2)
 6371                          ;*
 6372                          ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
 6373                          ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
 6374                          ;*      REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
 6375                          ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
 6376                          ;*
 6377                          ;*      177777  177767  177577  173777  077777
 6378                          ;*      177776  177757  177377  167777
```

```
                                ;*      177775  177737  176777  157777
                                ;*      177773  177677  175777  137777
                                ;*
                                ;;*****************************************************************
                                TST53:  SCOPE
042032  000004                          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
042034  012737  000764  001200          MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
042042  012701  000021                  MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
042046  012737  177776  002010          MOV     #EM20,EM3N      ;LOAD ERROR MESSAGE
042054  012737  064517  001320          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
042062  012762  100000  000000          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
042070  012737  042076  001110                                  ;  SUBTEST LOOP

042076                          1$:
042076  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
042102  013762  002010  000026          MOV     CONFIG,RKMR1(R2)        ;WRITE RKMR1
042110  016237  000026  001126          MOV     RKMR1(R2),$BDDAT        ;STORE RKMR1
042116  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
042124  042737  174000  001124          BIC     #PCA!PCD!ECCW!WRTGAT!RDGATE,$GDDAT ;INITIALIZE READ ONLY BITS
042132  052737  002000  001124          BIS     #MEWD,$GDDAT
042140  032737  020000  001126          BIT     #ECCW,$BDDAT
042146  001403                          BEQ     30$
042150  052737  020000  001124          BIS     #ECCW,$GDDAT
042156                          30$:
042156  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
042164  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
042166  012737  067072  001322          MOV     #EM1009,EM3N+2  ;LOAD ERROR MESSAGE
042174  104003                          ERROR   3
042176                          2$:
042176  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
042204  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
042212  001407                          BEQ     3$              ;YES, CONTINUE
042214  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
042222  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
042230  104003                          ERROR   3
042232                          3$:
042232  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
042240  001406                          BEQ     4$              ;CHECK IF ZERO
042242  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
042246  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
042254  104003                          ERROR   3
042256                          4$:
042256  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
042264  001406                          BEQ     5$              ;CHECK IF ZERO
042266  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
042272  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
042300  104003                          ERROR   3
042302                          5$:
042302  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
042310  001406                          BEQ     6$              ;CHECK IF ZERO
042312  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
042316  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
042324  104003                          ERROR   3
042326                          6$:
042326  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
042334  001406                          BEQ     7$              ;CHECK IF ZERO
```

```
6435  042336  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
6436  042342  012737  067556  001322            MOV     #EM1024,EM3N+2      ;LOAD ERROR MESSAGE
6437  042350  104003                            ERROR   3
6438  042352                            7$:
6439  042352  016237  000010  001126            MOV     RKCS2(R2),$BDDAT    ;STORE COMMAND AND STATUS REG.2
6440  042360  022737  000100  001126            CMP     #IR,$BDDAT          ;CHECK IF CS2 CORRECT
6441  042366  001407                            BEQ     8$                  ;YES,CONTINUE
6442  042370  012737  000100  001124            MOV     #IR,$GDDAT          ;LOAD EXPECTED CONTENTS
6443  042376  012737  067450  001322            MOV     #EM1021,EM3N+2      ;LOAD ERROR MESSAGE
6444  042404  104003                            ERROR   3
6445  042406                            8$:
6446  042406  016237  000012  001126            MOV     RKDS(R2),$BDDAT     ;STORE DRIVE STATUS REG
6447  042414  001406                            BEQ     9$                  ;CHECK IF ZERO
6448  042416  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
6449  042422  012737  067471  001322            MOV     #EM1022,EM3N+2      ;LOAD ERROR MESSAGE
6450  042430  104003                            ERROR   3
6451  042432  016237  000014  001126    9$:     MOV     RKER(R2),$BDDAT     ;STORE ERROR REG
6452  042440  001406                            BEQ     10$                 ;CHECK IF ZERO
6453  042442  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
6454  042446  012737  067527  001322            MOV     #EM1023,EM3N+2      ;LOAD ERROR MESSAGE
6455  042454  104003                            ERROR   3
6456  042456                            10$:
6457  042456  016237  000020  001126            MOV     RKDCYL(R2),$BDDAT   ;STORE CYLINDER ADD REG
6458  042464  001406                            BEQ     12$                 ;CHECK IF ZERO
6459  042466  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
6460  042472  012737  067624  001322            MOV     #EM1025,EM3N+2      ;LOAD ERROR MESSAGE
6461  042500  104003                            ERROR   3
6462  042502                            12$:
6463  042502  016237  000032  001126            MOV     RKECPT(R2),$BDDAT   ;STORE ECC PATTERN REG.
6464  042510  001406                            BEQ     15$                 ;CHECK IF ZERO
6465  042512  005037  001124                    CLR     $GDDAT              ;LOAD EXPECTED CONTENTS
6466  042516  012737  067727  001322            MOV     #EM1030,EM3N+2      ;LOAD ERROR MESSAGE
6467  042524  104003                            ERROR   3
6468  042526  016237  000030  001126    15$:    MOV     RKECPS(R2),$BDDAT   ;STORE ECC POSITION REG.
6469  042534  012737  004066  001124    16$:    MOV     #4066,$GDDAT        ;USE 4066
6470  042542  023737  001124  001126    17$:    CMP     $GDDAT,$BDDAT       ;CHECK IF ECC POSITION CORRECT
6471  042550  001404                            BEQ     18$                 ;YES,INITIALIZE RK611
6472  042552  012737  067702  001322            MOV     #EM1029,EM3N+2      ;LOAD ERROR MESSAGE
6473  042560  104003                            ERROR   3
6474  042562  016237  000026  002014    18$:    MOV     RKMR1(R2),PREREG            ;GET PREVIOUS CONTENTS
6475  042570  012762  100000  000000            MOV     #CCLR,RKCS1(R2)     ;CLEAR RK611 CONTROLLER
6476  042576  016237  000026  001126            MOV     RKMR1(R2),$BDDAT            ;GET CURRENT VALUE
6477  042604  012737  002000  001124            MOV     #MEWD,$GDDAT        ;LOAD EXPECTED CONTENTS
6478  042612  032737  020000  001126            BIT     #ECCW,$BDDAT
6479  042620  001403                            BEQ     35$
6480  042622  052737  020000  001124            BIS     #ECCW,$GDDAT
6481  042630                            35$:
6482  042630  023737  001124  001126            CMP     $GDDAT,$BDDAT       ;CHECK IF RKMR1 CORRECT
6483  042636  001407                            BEQ     19$                 ;YES, CHECK IF FINISHED
6484  042640  012737  063403  001330            MOV     #EM3,EM4N           ;LOAD ERROR MESSAGE
6485  042646  012737  067072  001332            MOV     #EM1009,EM4N+2
6486  042654  104004                            ERROR   4
6487  042656  104415                    19$:    SCOP1                       ;CHECK IF LOOP ON ERROR
6488  042660  000261                            SEC                         ;SHIFT IN ONE
6489  042662  006137  002010                    ROL     CONFIG
6490  042666  005301                            DEC     R1                  ;CHECK IF FINISHED
```

```
6491  042670  001402                        BEQ     TST54           ;;YES, GO ON TO NEXT TEST
6492  042672  000137  042076                JMP     1$
6493
6494                                  ;;*****************************************************************
6495                                  ;*TEST 54       REGISTER INTERACTION USING MAINT REG 1 (PART 3)
6496                                  ;*
6497                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
6498                                  ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
6499                                  ;*      REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
6500                                  ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
6501                                  ;*
6502                                  ;*      000001  000037  000777  017777  000000
6503                                  ;*      000003  000077  001777  037777
6504                                  ;*      000007  000177  003777  077777
6505                                  ;*      000017  000377  007777  177777
6506                                  ;*
6507                                  ;*****************************************************************
6508  042676  000004                TST54:  SCOPE
6509  042700  012737  000764  001200        MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
6510  042706  012701  000021                MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
6511  042712  005037  002010                CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
6512  042716  012737  064517  001320        MOV     #EM20,EM3N      ;LOAD ERROR MESSAGE
6513  042724  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
6514  042732  012737  042740  001110        MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
6515                                                                ;  SUBTEST LOOP
6516
6517  042740                        1$:
6518  042740  005062  000002                CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
6519  042744  013762  002010  000026        MOV     CONFIG,RKMR1(R2)        ;WRITE RKMR1
6520  042752  016237  000026  001126        MOV     RKMR1(R2),$BDDAT        ;STORE RKMR1
6521  042760  013737  002010  001124        MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
6522  042766  042737  174000  001124        BIC     #PCA!PCD!ECCW!WRTGAT!RDGATE,$GDDAT ;INITIALIZE READ ONLY BITS
6523  042774  052737  002000  001124        BIS     #MEWD,$GDDAT
6524  043002  032737  020000  001126        BIT     #ECCW,$BDDAT
6525  043010  001403                        BEQ     30$
6526  043012  052737  020000  001124        BIS     #ECCW,$GDDAT
6527  043020                        30$:
6528  043020  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
6529  043026  001404                        BEQ     2$              ;YES, TEST IF ANY OTHER REG MODIFIED
6530  043030  012737  067072  001322        MOV     #EM1009,EM3N+2  ;LOAD ERROR MESSAGE
6531  043036  104003                        ERROR   3
6532  043040                        2$:
6533  043040  016237  000000  001126        MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
6534  043046  022737  000200  001126        CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
6535  043054  001407                        BEQ     3$              ;YES, CONTINUE
6536  043056  012737  000100  001124        MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
6537  043064  012737  067314  001322        MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
6538  043072  104003                        ERROR   3
6539  043074                        3$:
6540  043074  016237  000004  001126        MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
6541  043102  001406                        BEQ     4$              ;CHECK IF ZERO
6542  043104  005037  001124                CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6543  043110  012737  067365  001322        MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
6544  043116  104003                        ERROR   3
6545  043120                        4$:
6546  043120  016237  000002  001126        MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
```

```
6547  043126  001406                        BEQ     5$                      ;CHECK IF ZERO
6548  043130  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6549  043134  012737  067335  001322        MOV     #EM1018,EM3N+2          ;LOAD ERROR MESSAGE
6550  043142  104003                        ERROR   3
6551  043144                          5$:
6552  043144  016237  000006  001126        MOV     RKDA(R2),$BDDAT         ;STORE DISK AVERAGE REG
6553  043152  001406                        BEQ     6$                      ;CHECK IF ZERO
6554  043154  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6555  043160  012737  067412  001322        MOV     #EM1020,EM3N+2          ;LOAD ERROR MESSAGE
6556  043166  104003                        ERROR   3
6557  043170                          6$:
6558  043170  016237  000016  001126        MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY/OFFSET REG.
6559  043176  001406                        BEQ     7$                      ;CHECK IF ZERO
6560  043200  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6561  043204  012737  067556  001322        MOV     #EM1024,EM3N+2          ;LOAD ERROR MESSAGE
6562  043212  104003                        ERROR   3
6563  043214                          7$:
6564  043214  016237  000010  001126        MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.2
6565  043222  022737  000100  001126        CMP     #IR,$BDDAT              ;CHECK IF CS2 CORRECT
6566  043230  001407                        BEQ     8$                      ;YES,CONTINUE
6567  043232  012737  000100  001124        MOV     #IR,$GDDAT              ;LOAD EXPECTED CONTENTS
6568  043240  012737  067450  001322        MOV     #EM1021,EM3N+2          ;LOAD ERROR MESSAGE
6569  043246  104003                        ERROR   3
6570  043250                          8$:
6571  043250  016237  000012  001126        MOV     RKDS(R2),$BDDAT         ;STORE DRIVE STATUS REG
6572  043256  001406                        BEQ     9$                      ;CHECK IF ZERO
6573  043260  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6574  043264  012737  067471  001322        MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
6575  043272  104003                        ERROR   3
6576  043274  016237  000014  001126  9$:   MOV     RKER(R2),$BDDAT         ;STORE ERROR REG
6577  043302  001406                        BEQ     10$                     ;CHECK IF ZERO
6578  043304  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6579  043310  012737  067527  001322        MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
6580  043316  104003                        ERROR   3
6581  043320                          10$:
6582  043320  016237  000020  001126        MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADD REG
6583  043326  001406                        BEQ     12$                     ;CHECK IF ZERO
6584  043330  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6585  043334  012737  067624  001322        MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
6586  043342  104003                        ERROR   3
6587  043344                          12$:
6588  043344  016237  000032  001126        MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
6589  043352  001406                        BEQ     15$                     ;CHECK IF ZERO
6590  043354  005037  001124                CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
6591  043360  012737  067727  001322        MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
6592  043366  104003                        ERROR   3
6593  043370  016237  000030  001126  15$:  MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
6594  043376  012737  004066  001124  16$:  MOV     #4066,$GDDAT            ;USE 4066
6595  043404  023737  001124  001126  17$:  CMP     $GDDAT,$BDDAT           ;CHECK IF ECC POSITION CORRECT
6596  043412  001404                        BEQ     18$                     ;YES,INITIALIZE RK611
6597  043414  012737  067702  001322        MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
6598  043422  104003                        ERROR   3
6599  043424  016237  000026  002014  18$:  MOV     RKMR1(R2),PREREG                ;GET PREVIOUS CONTENTS
6600  043432  012762  100000  000000        MOV     #CCLR,RKCS1(R2)         ;CLEAR RK611 CONTROLLER
6601  043440  016237  000026  001126        MOV     RKMR1(R2),$BDDAT                ;GET CURRENT VALUE
6602  043446  012737  002000  001124        MOV     #MEWD,$GDDAT            ;LOAD EXPECTED CONTENTS
```

```
 6603  043454  032737  020000  001126          BIT     #ECCW,$BDDAT
 6604  043462  001403                          BEQ     35$
 6605  043464  052737  020000  001124          BIS     #ECCW,$GDDAT
 6606  043472                          35$:
 6607  043472  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
 6608  043500  001407                          BEQ     19$             ;YES, CHECK IF FINISHED
 6609  043502  012737  063403  001330          MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
 6610  043510  012737  067072  001332          MOV     #EM1009,EM4N+2
 6611  043516  104004                          ERROR   4
 6612  043520  104415                  19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 6613  043522  000261                          SEC                     ;SHIFT IN ONE
 6614  043524  006137  002010                  ROL     CONFIG
 6615  043530  005301                          DEC     R1              ;CHECK IF FINISHED
 6616  043532  001402                          BEQ     TST55           ;;YES, GO ON TO NEXT TEST
 6617  043534  000137  042740                  JMP     1$
 6618
 6619                                  ;;*****************************************************************
 6620                                  ;*TEST 55        REGISTER INTERACTION USING MAINT REG 1 (PART 4)
 6621                                  ;*
 6622                                  ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
 6623                                  ;*      WRITE THE WORD COUNT REGISTER TO ZERO. WRITE MAINTENANCE
 6624                                  ;*      REGISTER 1 WITH THE FOLLOWING CONFIGURATIONS. CHECK IF CONTENTS
 6625                                  ;*      ARE CORRECT AND NO INTERACTION TAKES PLACE.
 6626                                  ;*
 6627                                  ;*      100000  174000  177600  177770  000000
 6628                                  ;*      140000  176000  177700  177774
 6629                                  ;*      160000  177000  177740  177776
 6630                                  ;*      170000  177400  177760  177777
 6631                                  ;*
 6632                                  ;*****************************************************************
 6633  043540  000004                  TST55:  SCOPE
 6634  043542  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
 6635  043550  012701  000021                  MOV     #17.,R1         ;LOAD NUMBER OF PATTERNS
 6636  043554  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
 6637  043560  012737  064517  001320          MOV     #EM20,EM3N      ;LOAD ERROR MESSAGE
 6638  043566  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
 6639  043574  012737  043602  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
 6640                                                                  ;  SUBTEST LOOP
 6641
 6642  043602                          1$:
 6643  043602  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
 6644  043606  013762  002010  000026          MOV     CONFIG,RKMR1(R2)        ;WRITE RKMR1
 6645  043614  016237  000026  001126          MOV     RKMR1(R2),$BDDAT        ;STORE RKMR1
 6646  043622  013737  002010  001124          MOV     CONFIG,$GDDAT   ;PREPARE EXPECTED RESULTS
 6647  043630  042737  174000  001124          BIC     #PCA!PCD!ECCW!WRTGAT!RDGATE,$GDDAT ;INITIALIZE READ ONLY BITS
 6648  043636  052737  002000  001124          BIS     #MEWD,$GDDAT
 6649  043644  032737  020000  001126          BIT     #ECCW,$BDDAT
 6650  043652  001403                          BEQ     30$
 6651  043654  052737  020000  001124          BIS     #ECCW,$GDDAT
 6652  043662                          30$:
 6653  043662  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
 6654  043670  001404                          BEQ     2$              ;YES,TEST IF ANY OTHER REG MODIFIED
 6655  043672  012737  067072  001322          MOV     #EM1009,EM3N+2  ;LOAD ERROR MESSAGE
 6656  043700  104003                          ERROR   3
 6657  043702                          2$:
 6658  043702  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 1
```

```
6659  043710  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
6660  043716  001407                          BEQ     3$              ;YES, CONTINUE
6661  043720  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED RESULTS
6662  043726  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
6663  043734  104003                          ERROR   3
6664  043736                          3$:
6665  043736  016237  000004  001126          MOV     RKBA(R2),$BDDAT ;STORE BUS AND REG
6666  043744  001406                          BEQ     4$              ;CHECK IF ZERO
6667  043746  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6668  043752  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
6669  043760  104003                          ERROR   3
6670  043762                          4$:
6671  043762  016237  000002  001126          MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG
6672  043770  001406                          BEQ     5$              ;CHECK IF ZERO
6673  043772  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6674  043776  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
6675  044004  104003                          ERROR   3
6676  044006                          5$:
6677  044006  016237  000006  001126          MOV     RKDA(R2),$BDDAT ;STORE DISK AVERAGE REG
6678  044014  001406                          BEQ     6$              ;CHECK IF ZERO
6679  044016  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6680  044022  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
6681  044030  104003                          ERROR   3
6682  044032                          6$:
6683  044032  016237  000016  001126          MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG.
6684  044040  001406                          BEQ     7$              ;CHECK IF ZERO
6685  044042  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6686  044046  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
6687  044054  104003                          ERROR   3
6688  044056                          7$:
6689  044056  016237  000010  001126          MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG.2
6690  044064  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
6691  044072  001407                          BEQ     8$              ;YES,CONTINUE
6692  044074  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
6693  044102  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
6694  044110  104003                          ERROR   3
6695  044112                          8$:
6696  044112  016237  000012  001126          MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG
6697  044120  001406                          BEQ     9$              ;CHECK IF ZERO
6698  044122  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6699  044126  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
6700  044134  104003                          ERROR   3
6701  044136  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
6702  044144  001406                          BEQ     10$             ;CHECK IF ZERO
6703  044146  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6704  044152  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
6705  044160  104003                          ERROR   3
6706  044162                          10$:
6707  044162  016237  000020  001126          MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
6708  044170  001406                          BEQ     12$             ;CHECK IF ZERO
6709  044172  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6710  044176  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
6711  044204  104003                          ERROR   3
6712  044206                          12$:
6713  044206  016237  000032  001126          MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
6714  044214  001406                          BEQ     15$             ;CHECK IF ZERO
```

```
6715  044216  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6716  044222  012737  067727  001322                MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
6717  044230  104003                                ERROR   3
6718  044232  016237  000030  001126  15$:          MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG.
6719  044240  012737  004066  001124  16$:          MOV     #4066,$GDDAT    ;USE 4066
6720  044246  023737  001124  001126  17$:          CMP     $GDDAT,$BDDAT   ;CHECK IF ECC POSITION CORRECT
6721  044254  001404                                BEQ     18$             ;YES,INITIALIZE RK611
6722  044256  012737  067702  001322                MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
6723  044264  104003                                ERROR   3
6724  044266  016237  000026  002014  18$:          MOV     RKMR1(R2),PREREG        ;GET PREVIOUS CONTENTS
6725  044274  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
6726  044302  016237  000026  001126                MOV     RKMR1(R2),$BDDAT        ;GET CURRENT VALUE
6727  044310  012737  002000  001124                MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
6728  044316  032737  020000  001126                BIT     #ECCW,$BDDAT
6729  044324  001403                                BEQ     35$
6730  044326  052737  020000  001124                BIS     #ECCW,$GDDAT
6731  044334                                35$:
6732  044334  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;CHECK IF RKMR1 CORRECT
6733  044342  001407                                BEQ     19$             ;YES, CHECK IF FINISHED
6734  044344  012737  063403  001330                MOV     #EM3,EM4N       ;LOAD ERROR MESSAGE
6735  044352  012737  067072  001332                MOV     #EM1009,EM4N+2
6736  044360  104004                                ERROR   4
6737  044362  104415                        19$:    SCOP1                   ;CHECK IF LOOP ON ERROR
6738  044364  000261                                SEC                     ;SHIFT IN ONE
6739  044366  006037  002010                        ROR     CONFIG
6740  044372  005301                                DEC     R1              ;CHECK IF FINISHED
6741  044374  001402                                BEQ     TST56           ;;YES, GO ON TO NEXT TEST
6742  044376  000137  043602                        JMP     1$
6743
6744                                ;;*****************************************************************
6745                                ;*TEST 56       REGISTER INTERACTION WITH PATTERN REG.
6746                                ;*
6747                                ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
6748                                ;*      WRITE THE WORD COUNT WITH REGISTER TO ZERO. WRITE PATTERN
6749                                ;*      REGISTER TO 177777 AND MAKE SURE IT REMAINS 0 AND
6750                                ;*      NO INTERACTION TAKES PLACE.
6751                                ;*
6752                                ;;*****************************************************************
6753  044402  000004                TST56:  SCOPE
6754  044404  012737  000764  001200                MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
6755  044412  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
6756  044416  012737  177777  002010                MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
6757  044424  012737  064220  001320                MOV     #EM14,EM3N      ;LOAD ERROR MESSAGE
6758  044432  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
6759  044440  005062  000002                        CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
6760  044444  012762  177777  000032                MOV     #177777,RKECPT(R2) ;WRITE RKECPT WITH 177777
6761  044452  016237  00000C  001126                MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
6762  044460  022737  000200  001126                CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
6763  044466  001407                                BEQ     1$              ;YES,CONTINUE
6764  044470  012737  000200  001124                MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
6765  044476  012737  067314  001322                MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
6766  044504  104003                                ERROR   3
6767  044506  016237  000004  001126  1$:          MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
6768  044514  001406                                BEQ     2$              ;CHECK IF ZERO
6769  044516  005037  001124                        CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6770  044522  012737  067365  001322                MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
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6771  044530  104003                    ERROR   3
6772  044532  016237  000002  001126  2$:  MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
6773  044540  001406                    BEQ     3$              ;CHECK IF ZERO
6774  044542  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6775  044546  012737  067335  001322    MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
6776  044554  104003                    ERROR   3
6777  044556  016237  000006  001126  3$:  MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
6778  044564  001406                    BEQ     4$              ;CHECK IF ZERO
6779  044566  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6780  044572  012737  067412  001322    MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
6781  044600  104003                    ERROR   3
6782  044602  016237  000016  001126  4$:  MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
6783  044610  001406                    BEQ     5$              ;CHECK IF ZERO
6784  044612  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6785  044616  012737  067556  001322    MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
6786  044624  104003                    ERROR   3
6787  044626  016237  000010  001126  5$:  MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
6788  044634  022737  000100  001126    CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
6789  044642  001407                    BEQ     6$              ;YES,CONTINUE
6790  044644  012737  000100  001124    MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
6791  044652  012737  067450  001322    MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
6792  044660  104003                    ERROR   3
6793  044662  016237  000012  001126  6$:  MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
6794  044670  001406                    BEQ     7$              ;CHECK IF ZERO
6795  044672  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6796  044676  012737  067471  001322    MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
6797  044704  104003                    ERROR   3
6798  044706  016237  000014  001126  7$:  MOV     RKER(R2),$BDDAT ;STORE ERROR REG
6799  044714  001406                    BEQ     8$              ;CHECK IF ZERO
6800  044716  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6801  044722  012737  067527  001322    MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
6802  044730  104003                    ERROR   3
6803  044732  016237  000020  001126  8$:  MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
6804  044740  001406                    BEQ     10$             ;CHECK IF ZERO
6805  044742  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED RESULTS
6806  044746  012737  067624  001322    MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
6807  044754  104003                    ERROR   3
6808  044756  016237  000026  001126  10$:  MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
6809  044764  012737  002000  001124    MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
6810  044772  032737  020000  001126    BIT     #ECCW,$BDDAT
6811  045000  001403                    BEQ     11$
6812  045002  052737  020000  001124    BIS     #ECCW,$GDDAT
6813  045010  023737  001124  001126  11$:  CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
6814  045016  001404                    BEQ     12$             ;YES,CONTINUE TEST
6815  045020  012737  067651  001322    MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
6816  045026  104003                    ERROR   3
6817  045030  016237  000032  001126  12$:  MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
6818  045036  001406                    BEQ     13$             ;CHECK IF ZERO
6819  045040  005037  001124            CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6820  045044  012737  067727  001322    MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
6821  045052  104003                    ERROR   3
6822  045054  016237  000030  001126  13$:  MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
6823  045062  022737  004066  001126    CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
6824  045070  001407                    BEQ     TST57           ;;YES,GO TO NEXT TEST
6825  045072  012737  004066  001124    MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
6826  045100  012737  067702  001322    MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
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 6827  045106  104003                          ERROR   3
 6828
 6829                                  ;;*****************************************************************
 6830                                  ;*TEST 57       REGISTER INTERACTION WITH POSITION REG.
 6831                                  ;*
 6832                                  ;*       ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 REGISTERS.
 6833                                  ;*       WRITE THE WORD COUNT WITH REGISTER TO ZERO. WRITE POSITION
 6834                                  ;*       REGISTER TO 177777 AND MAKE SURE IT STAYS AT THE
 6835                                  ;*       INITIALIZED CONDITION AND NO INTERACTION TAKES PLACE.
 6836                                  ;*
 6837                                  ;;*****************************************************************
 6838  045110  000004                  TST57:  SCOPE
 6839  045112  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
 6840  045120  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE ADDRESS
 6841  045124  012737  177777  002010          MOV     #177777,CONFIG  ;LOAD CONFIGURATION WORD
 6842  045132  012737  064260  001320          MOV     #EM15,EM3N      ;LOAD ERROR MESSAGE
 6843  045140  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
 6844  045146  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
 6845  045152  012762  177777  000030          MOV     #177777,RKECPS(R2) ;WRITE RKECPS WITH 177777
 6846  045160  016237  000000  001126          MOV     RKCS1(R2),$BDDAT ;STORE COMMAND AND STATUS REG.1
 6847  045166  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
 6848  045174  001407                          BEQ     1$              ;YES,CONTINUE
 6849  045176  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED RESULTS
 6850  045204  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
 6851  045212  104003                          ERROR   3
 6852  045214  016237  000004  001126  1$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADD REG.
 6853  045222  001406                          BEQ     2$              ;CHECK IF ZERO
 6854  045224  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6855  045230  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
 6856  045236  104003                          ERROR   3
 6857  045240  016237  000002  001126  2$:     MOV     RKWC(R2),$BDDAT ;STORE WORK COUNT REG.
 6858  045246  001406                          BEQ     3$              ;CHECK IF ZERO
 6859  045250  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6860  045254  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
 6861  045262  104003                          ERROR   3
 6862  045264  016237  000006  001126  3$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADD REG
 6863  045272  001406                          BEQ     4$              ;CHECK IF ZERO
 6864  045274  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6865  045300  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
 6866  045306  104003                          ERROR   3
 6867  045310  016237  000016  001126  4$:     MOV     RKASOF(R2),$BDDAT ;STORE ATTENTION SUMMARY/OFFSET REG
 6868  045316  001406                          BEQ     5$              ;CHECK IF ZERO
 6869  045320  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6870  045324  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
 6871  045332  104003                          ERROR   3
 6872  045334  016237  000010  001126  5$:     MOV     RKCS2(R2),$BDDAT ;STORE COMMAND AND STATUS REG. 2
 6873  045342  022737  000100  001126          CMP     #IR,$BDDAT      ;CHECK IF CS2 CORRECT
 6874  045350  001407                          BEQ     6$              ;YES,CONTINUE
 6875  045352  012737  000100  001124          MOV     #IR,$GDDAT      ;LOAD EXPECTED CONTENTS
 6876  045360  012737  067450  001322          MOV     #EM1021,EM3N+2  ;LOAD ERROR MESSAGE
 6877  045366  104003                          ERROR   3
 6878  045370  016237  000012  001126  6$:     MOV     RKDS(R2),$BDDAT ;STORE DRIVE STATUS REG.
 6879  045376  001406                          BEQ     7$              ;CHECK IF ZERO
 6880  045400  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 6881  045404  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 6882  045412  104003                          ERROR   3
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6883  045414  016237  000014  001126  7$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REG
6884  045422  001406                          BEQ     8$              ;CHECK IF ZERO
6885  045424  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6886  045430  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
6887  045436  104003                          ERROR   3
6888  045440  016237  000020  001126  8$:     MOV     RKDCYL(R2),$BDDAT ;STORE CYLINDER ADD REG
6889  045446  001406                          BEQ     10$             ;CHECK IF ZERO
6890  045450  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED RESULTS
6891  045454  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
6892  045462  104003                          ERROR   3
6893  045464  016237  000026  001126  10$:    MOV     RKMR1(R2),$BDDAT ;STORE MAINTENANCE REG 1
6894  045472  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED CONTENTS
6895  045500  032737  020000  001126          BIT     #ECCW,$BDDAT
6896  045506  001403                          BEQ     11$
6897  045510  052737  020000  001124          BIS     #ECCW,$GDDAT
6898  045516  023737  001124  001126  11$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
6899  045524  001404                          BEQ     12$             ;YES,CONTINUE TEST
6900  045526  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
6901  045534  104003                          ERROR   3
6902  045536  016237  000032  001126  12$:    MOV     RKECPT(R2),$BDDAT ;STORE ECC PATTERN REG.
6903  045544  001406                          BEQ     13$             ;CHECK IF ZERO
6904  045546  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
6905  045552  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
6906  045560  104003                          ERROR   3
6907  045562  016237  000030  001126  13$:    MOV     RKECPS(R2),$BDDAT ;STORE ECC POSITION REG:
6908  045570  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION CORRECT
6909  045576  001407                          BEQ     TST60           ;;YES,GO TO NEXT TEST
6910  045600  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
6911  045606  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESAGE
6912  045614  104003                          ERROR   3
6913
6914
6915                                  .SBTTL  **INTERRUPT TESTS
6916
6917                                  ;;*****************************************************************
6918                                  ;*TEST 60       RK611 INTERRUPT
6919                                  ;*
6920                                  ;*      STORE LOCATIONS 0-776, LOAD LOCATIONS 0-776 TO TRAP ALL
6921                                  ;*      POSSIBLE INTERRUPTS.  LOWER PROCESSOR PRIORITY TO ZERO.
6922                                  ;*      MAKE SURE THAT NO INTERRUPT OCCURS.  NOW SET INTERRUPT
6923                                  ;*      ENABLE AND READY.  VERIFY THAT THE INTERRUPT OCCURS AT
6924                                  ;*      PROPER VECTOR ADDRESS.  MAKE SURE THAT INTERRUPT IS
6925                                  ;*      CLEARED AFTER IT IS GIVEN.
6926                                  ;*
6927                                  ;*****************************************************************
6928  045616  000004                  TST60:  SCOPE
6929  045620  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
6930  045626  012701  067754                  MOV     #SAVVEC,R1      ;LOAD SAVED ADDRESS
6931  045632  005000                          CLR     R0              ;LOAD START OF VECTOR SPACE
6932  045634  012703  000400                  MOV     #400,R3         ;LOAD COUNT
6933  045640  012021                  1$:     MOV     (R0)+,(R1)+     ;SAVE TRAP CATCHER
6934  045642  005303                          DEC     R3
6935  045644  001375                          BNE     1$
6936  045646  012737  177777  002016          MOV     #-1,SAVFLG      ;INDICATE TRAP CATCHER SAVED
6937  045654  005000                          CLR     R0              ;LOAD ADDRESS OF START OF VECTOR SPACE
6938  045656  012701  046010                  MOV     #10$,R1         ;LOAD START OF VECTOR TABLE
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6939  045662  012703  000200            2$:   MOV   #200,R3          ;LOAD COUNT
6940  045666  010120                          MOV   R1,(R0)+          ;LOAD VECTOR SPACE
6941  045670  012720  000340                  MOV   #PR7,(R0)+        ;  PRIORITY 7
6942  045674  062701  000002                  ADD   #2,R1
6943  045700  005303                          DEC   R3
6944  045702  001371                          BNE   2$
6945  045704  012762  100000  000000          MOV   #CCLR,RKCS1(R2) ;CLEAR RK611 WITH CONTROLLER CLEAR
6946  045712  012705  046410                  MOV   #11$,R5         ;LOAD ADDRESS FOR UNEXPECTED INTERRUPT
6947  045716  005046                          CLR   -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
6948  045720  012746  045726                  MOV   #64$,-(SP)      ;LOAD NEXT ADDRESS
6949  045724  000002                          RTI                   ;CLEAR PSW
6950
6951  045726                            64$:
6952  045726  000240                          NOP                   ;ALLOW INTERRUPT TO OCCUR
6953  045730  012705  046462                  MOV   #15$,R5         ;LOAD ADDRESS FOR EXPECTED INTERRUPT
6954  045734  012762  000300  000000          MOV   #RDY!IE,RKCS1(R2) ;GENERATE INTERRUPT
6955  045742  000240                          NOP                   ;ALLOW INTERRUPT TO OCCUR
6956  045744  012746  000340                  MOV   #PR7,-(SP)      ;LOCK OUT ALL INTERRUPTS
6957  045750  012746  045756                  MOV   #3$,-(SP)
6958  045754  000002                          RTI
6959
6960  045756  012701  067754            3$:   MOV   #SAVVEC,R1        ;LOAD SAVED TRAP CATCHER ADDRESS
6961  045762  005000                          CLR   R0                ;LOAD START OF VECTOR SPACE
6962  045764  012703  000400                  MOV   #400,R3           ;LOAD COUNT
6963  045770  012120                    4$:   MOV   (R1)+,(R0)+       ;RESTORE TRAP CATCHER
6964  045772  005303                          DEC   R3
6965  045774  001375                          BNE   4$
6966  045776  005037  002016                  CLR   SAVFLG            ;INDICATE TRAP CATCHER RESTORED
6967  046002  104005                          ERROR 5                 ;REPORT INTERRUPT DID NOT OCCUR
6968  046004  000137  046672                  JMP   60$               ;GO ON TO NEXT TEST
6969
6970  046010                            10$:
6971  046010  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6972  046012  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6973  046014  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6974  046016  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6975  046020  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6976  046022  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6977  046024  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6978  046026  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6979  046030  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6980  046032  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6981  046034  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6982  046036  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6983  046040  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6984  046042  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6985  046044  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6986  046046  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6987  046050  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6988  046052  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6989  046054  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6990  046056  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6991  046060  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6992  046062  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6993  046064  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
6994  046066  004715                          JSR   PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
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  6995  046070  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  6996  046072  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  6997  046074  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  6998  046076  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  6999  046100  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7000  046102  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7001  046104  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7002  046106  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7003  046110  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7004  046112  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7005  046114  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7006  046116  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7007  046120  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7008  046122  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7009  046124  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7010  046126  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7011  046130  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7012  046132  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7013  046134  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7014  046136  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7015  046140  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7016  046142  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7017  046144  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7018  046146  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7019  046150  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7020  046152  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7021  046154  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7022  046156  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7023  046160  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7024  046162  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7025  046164  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7026  046166  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7027  046170  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7028  046172  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7029  046174  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7030  046176  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7031  046200  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7032  046202  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7033  046204  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7034  046206  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7035  046210  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7036  046212  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7037  046214  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7038  046216  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7039  046220  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7040  046222  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7041  046224  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7042  046226  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7043  046230  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7044  046232  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7045  046234  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7046  046236  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7047  046240  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7048  046242  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7049  046244  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
  7050  046246  004715                JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
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 7051   046250   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7052   046252   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7053   046254   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7054   046256   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7055   046260   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7056   046262   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7057   046264   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7058   046266   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7059   046270   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7060   046272   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7061   046274   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7062   046276   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7063   046300   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7064   046302   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7065   046304   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7066   046306   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7067   046310   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7068   046312   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7069   046314   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7070   046316   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7071   046320   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7072   046322   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7073   046324   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7074   046326   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7075   046330   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7076   046332   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7077   046334   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7078   046336   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7079   046340   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7080   046342   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7081   046344   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7082   046346   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7083   046350   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7084   046352   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7085   046354   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7086   046356   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7087   046360   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7088   046362   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7089   046364   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7090   046366   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7091   046370   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7092   046372   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7093   046374   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7094   046376   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7095   046400   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7096   046402   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7097   046404   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7098   046406   004715                      JSR     PC,(R5)         ;LOAD STACK FOR VECTOR ADDRESS
 7099
 7100   046410   012637   001122      11$:   MOV     (SP)+,$BDADR    ;DETERMINE VECTOR ADDRESS
 7101   046414   162737   046012   001122    SUB     #10$+2,$BDADR
 7102   046422   006337   001122             ASL     $BDADR
 7103   046426   062706   000004             ADD     #4,SP           ;ADJUST STACK
 7104   046432   012701   067754             MOV     #SAVVEC,R1      ;LOAD SAVED TRAP CATCHER ADDRESS
 7105   046436   005000                      CLR     R0              ;LOAD START OF VECTOR SPACE
 7106   046440   012703   000400             MOV     #400,R3         ;LOAD COUNT
```

```
7107  046444  012120                  12$:    MOV     (R1)+,(R0)+     ;RESTORE TRAP CATCHER
7108  046446  005303                          DEC     R3
7109  046450  001375                          BNE     12$
7110  046452  005037  002016                  CLR     SAVFLG          ;INDICATE TRAP CATCHER RESTORED
7111  046456  104006                          ERROR   6               ;REPORT UNEXPECTED INTERRUPT
7112  046460  000504                          BR      TST61           ;;GO ON TO NEXT TEST
7113
7114  046462  012637  001122          15$:    MOV     (SP)+,$BDADR    ;DETERMINE VECTOR ADDRESS
7115  046466  162737  046012  001122          SUB     #10$+2,$BDADR
7116  046474  006337  001122                  ASL     $BDADR
7117  046500  062706  000004                  ADD     #4,SP           ;ADJUST STACK
7118  046504  023737  002000  001122          CMP     RKVEC,$BDADR    ;CHECK IF VECTOR ADDRESS CORRECT
7119  046512  001414                          BEQ     20$             ;YES, CONTINUE
7120  046514  012701  067754                  MOV     #SAVVEC,R1      ;LOAD SAVED TRAP CATCHER ADDRESS
7121  046520  005000                          CLR     R0              ;START OF VECTOR SPACE
7122  046522  012703  000400                  MOV     #400,R3         ;LOAD COUNT
7123  046526  012120                  16$:    MOV     (R1)+,(R0)+     ;RESTORE TRAP CATCHER
7124  046530  005303                          DEC     R3
7125  046532  001375                          BNE     16$
7126  046534  005037  002016                  CLR     SAVFLG          ;INDICATE TRAP CATCHER RESTORED
7127  046540  104007                          ERROR   7               ;REPORT INCORRECT VECTOR ADDRESS
7128  046542  000453                          BR      TST61           ;;GO ON TO NEXT TEST
7129
7130  046544  012705  046622          20$:    MOV     #25$,R5         ;LOAD ADDRESS FOR UNEXPECTED INTERRUPT
7131  046550  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
7132  046552  012746  046560                  MOV     #65$,-(SP)      ;LOAD NEXT ADDRESS
7133  046556  000002                          RTI                     ;CLEAR PSW
7134
7135  046560                          65$:
7136  046560  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT RK611 INTERRUPTS
7137
7138  046564  012746  046572                  MOV     #21$,-(SP)
7139  046570  000002                          RTI
7140
7141  046572  000240          21$:    NOP                             ;ALLOW INTERRUPT TO OCCUR
7142  046574  012701  067754                  MOV     #SAVVEC,R1      ;LOAD SAVE TRAP CATCHER ADDRESS
7143  046600  005000                          CLR     R0              ;START OF VECTOR SPACE
7144  046602  012703  000400                  MOV     #400,R3 ;LOAD COUNT
7145  046606  012120                  22$:    MOV     (R1)+,(R0)+     ;RESTORE TRAP CATCHER
7146  046610  005303                          DEC     R3
7147  046612  001375                          BNE     22$
7148  046614  005037  002016                  CLR     SAVFLG          ;INDICATE TRAP CATCHER RESTORED
7149  046620  000424                          BR      TST61           ;;GO ON TO NEXT TEST
7150
7151  046622  012637  001122          25$:    MOV     (SP)+,$BDADR    ;DETERMINE VECTOR ADDRESS
7152  046626  162737  046012  001122          SUB     #10$+2,$BDADR
7153  046634  006337  001122                  ASL     $BDADR
7154  046640  062706  000004                  ADD     #4,SP           ;ADJUST STACK
7155  046644  012701  067754                  MOV     #SAVVEC,R1      ;LOAD SAVE TRAP CATCHER ADDRESS
7156  046650  005000                          CLR     R0              ;START OF VECTOR SPACE
7157  046652  012703  000400                  MOV     #400,R3         ;LOAD COUNT
7158  046656  012120                  26$:    MOV     (R1)+,(R0)+     ;RESTORE TRAP CATCHER
7159  046660  005303                          DEC     R3
7160  046662  001375                          BNE     26$
7161  046664  005037  002016                  CLR     SAVFLG          ;INDICATE THAT TRAP CATCHER RESTART
7162
```

```
7163  046670  104010                        ERROR   10              ;REPORT ATTENTION DID NOT CLEAR
7164  046672                          60$:
7165
7166                                  ;;*****************************************************************
7167                                  ;*TEST 61        INTERRUPT PRIORITY
7168                                  ;*
7169                                  ;*      SET UP PRIORITY TO 1 LESS THAN INTERRUPT PRIORITY.
7170                                  ;*      WRITE READY WITH INTERRUPT ENABLE.  MAKE SURE INTERRUPT OCCURS.
7171                                  ;*
7172                                  ;*      NOW SET UP PRIORITY EQUAL TO INTERRUPT PRIORITY.
7173                                  ;*      WRITE INTERRUPT ENABLE WITH READY.  MAKE SURE INTERRUPT
7174                                  ;*      DOES NOT  OCCUR.  NOW LOWER PRIOIRY AND MAKE
7175                                  ;*      INTERRUPT HAS BEEN STORED.
7176                                  ;*
7177                                  ;;*****************************************************************
7178  046672  000004                  TST61:  SCOPE
7179  046674  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7180  046702  013701  002000                  MOV     RKVEC,R1        ;LOAD RK611 VECTOR ADDRESS FOR INTERRUPT
7181  046706  012721  046776                  MOV     #10$,(R1)+      ;  PRIORITY 7
7182  046712  013746  002002                  MOV     RKPRI,-(SP)     ;SET PROCESSOR PRIORITY =
7183  046716  162716  000040                  SUB     #40,(SP)        ;  RK611 PRIORITY -1
7184  046722  011646                          MOV     (SP),-(SP)
7185  046724  006216                          ASR     (SP)
7186  046726  006216                          ASR     (SP)
7187  046730  006216                          ASR     (SP)
7188  046732  006216                          ASR     (SP)
7189  046734  006216                          ASR     (SP)
7190  046736  012637  002020                  MOV     (SP)+,PRIOR
7191  046742  012746  046750                  MOV     #1$,-(SP)
7192  046746  000002                          RTI
7193
7194  046750  012762  000300  000000  1$:     MOV     #RDY!IE,RKCS1(R2)       ;GENERATE RK611 INTERRUPT
7195  046756  000240                          NOP                     ;WAIT FOR INTERRUPT
7196  046760  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
7197  046764  012746  046772                  MOV     #2$,-(SP)
7198  046770  000002                          RTI
7199
7200  046772  104011                  2$:     ERROR   11              ;EXPECTED INTERRUPT DID NOT OCCUR AT
7201                                                                  ;  PROCESSOR PRIORITY
7202  046774  000462                          BR      60$             ;RESTORE TRAP CATCHER
7203
7204  046776  062706  000004          10$:    ADD     #4,SP           ;ADJUST STACK
7205  047002  012777  047126  132770          MOV     #20$,@RKVEC     ;LOAD RK611 VECTOR FOR UNEXPECTED
7206                                                                  ;  INTERRUPT
7207  047010  013737  002002  002020          MOV     RKPRI,PRIOR     ;STORE PRIORITY PRINT OUT
7208  047016  006237  002020                  ASR     PRIOR
7209  047022  006237  002020                  ASR     PRIOR
7210  047026  006237  002020                  ASR     PRIOR
7211  047032  006237  002020                  ASR     PRIOR
7212  047036  006237  002020                  ASR     PRIOR
7213  047042  013746  002002                  MOV     RKPRI,-(SP)     ;SET PROCESSOR PRIORITY
7214  047046  012746  047054                  MOV     #11$,-(SP)      ;  RK611 PRIORITY
7215  047052  000002                          RTI
7216
7217  047054  012762  000300  000000  11$:    MOV     #RDY!IE,RKCS1(R2)       ;GENERATE RK611 INTERRUPT
7218  047062  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
```

```
7219  047064  005037  002020          CLR     PRIOR           ;LOAD PRIORITY FOR PRINT OUT
7220  047070  012777  047136  132702  MOV     #25$,@RKVEC     ;LOAD RK611 VECTOR FOR INTERRUPT
7221  047076  005046                  CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
7222  047100  012746  047106          MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
7223  047104  000002                  RTI                     ;CLEAR PSW
7224
7225  047106                  64$:
7226  047106  000240                  NOP                     ;ALLOW INTERRUPT TO OCCUR
7227  047110  012746  000340          MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
7228  047114  012746  047122          MOV     #12$,-(SP)
7229  047120  000002                  RTI
7230
7231  047122  104013          12$:    ERROR   13              ;INTERRUPT DID NOT OCCUR WHEN
7232                                                          ;  PRIORITY LOWERED
7233  047124  000406                  BR      60$             ;RESTORE TRAP CATCHER
7234
7235  047126  062706  000004  20$:    ADD     #4,SP           ;ADJUST STACK
7236  047132  104012                  ERROR   12              ;UNEXPECTED INTERRUPT OCCURRED
7237                                                          ;  AT PROCESSOR PRIORITY
7238  047134  000402                  BR      60$             ;RESTORE TRAP CATCHER
7239
7240  047136  062706  000004  25$:    ADD     #4,SP           ;ADJUST STACK
7241
7242  047142  013701  002000  60$:    MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
7243  047146  010111                  MOV     R1,(R1)
7244  047150  062721  000002          ADD     #2,(R1)+
7245  047154  005011                  CLR     (R1)
7246
7247                          ;;*****************************************************************
7248                          ;*TEST 62       SETTING INTERRUPT ENABLE
7249                          ;*
7250                          ;*      CLEAR RK611 CONTROLLER WITH CONTROLLER CLEAR. ALLOW RK611
7251                          ;*      INTERRUPTS BY SETTING PROCESSOR PRIORITY TO ZERO.
7252                          ;*      SET INTERRUPT ENABLE AND MAKE SURE NO INTERRUPTS OCCUR.
7253                          ;*
7254                          ;*****************************************************************
7255  047156  000004  TST62:  SCOPE
7256  047160  012737  000764  001200  MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7257  047166  012762  100000  000000  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7258  047174  013701  002000          MOV     RKVEC,R1        ;LOAD RK611 VECTOR ADDRESS FOR
7259  047200  012721  047242          MOV     #10$,(R1)+      ;  UNEXPECTED INTERRUPT
7260  047204  012711  000340          MOV     #PR7,(R1)       ;  PRIORITY 7
7261  047210  005046                  CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
7262  047212  012746  047220          MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
7263  047216  000002                  RTI                     ;CLEAR PSW
7264
7265  047220                  64$:
7266  047220  012762  000100  000000  MOV     #IE,RKCS1(R2)   ;SET INTERRUPT ENABLE
7267  047226  000240                  NOP                     ;ALLOW INTERRUPT TO OCCUR
7268  047230  012746  000340          MOV     #PR7,-(SP)      ;LOCK OUT ALL INTERRUPTS
7269  047234  012746  047250          MOV     #15$,-(SP)      ;RESTORE TRAP CATCHER
7270  047240  000002                  RTI
7271
7272  047242  062706  000004  10$:    ADD     #4,SP           ;ADJUST STACK
7273  047246  104014                  ERROR   14              ;REPORT ERROR
7274  047250  013701  002000  15$:    MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
```

```
7275  047254  010111                          MOV     R1,(R1)
7276  047256  012721  000002                  MOV     #2,(R1)+
7277  047262  005011                          CLR     (R1)
7278
7279                                  ;;*****************************************************************
7280                                  ;*TEST 63        INTERRUPT CLEARING
7281                                  ;*
7282                                  ;*      SET UP PRIORITY TO SEVEN.  CREATE INTERRUPT BY SETTING
7283                                  ;*      INTERRUPT ENABLE  READY.  AND CLEAR IT WITH CONTROLLER
7284                                  ;*      CLEAR. SET INTERRUPT ENABLE.  NOW LOWER PRIORITY
7285                                  ;*      TO MAKE SURE NO INTERRUPT OCCURS.
7286                                  ;*
7287                                  ;*****************************************************************
7288  047264  000004                  TST63:  SCOPE
7289  047266  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7290  047274  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
7291  047302  012762  000300  000000          MOV     #IE!RDY,RKCS1(R2)       ;GENERATE INTERRUPT
7292  047310  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR INTERRUPT
7293  047316  012762  000100  000000          MOV     #IE,RKCS1(R2)   ;GET INTERRUPT ENABLE
7294  047324  013701  002000                  MOV     RKVEC,R1        ;LOAD RK611 VECTOR ADDRESS FOR
7295  047330  012721  047364                  MOV     #10$,(R1)+      ;  UNEXPECTED INTERRUPT
7296  047334  012711  000340                  MOV     #PR7,(R1)       ;  PRIORITY 7
7297  047340  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
7298  047342  012746  047350                  MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
7299  047346  000002                          RTI                     ;CLEAR PSW
7300
7301  047350                          64$:
7302  047350  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
7303  047352  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
7304  047356  012746  047372                  MOV     #15$,-(SP)      ;RESTORE TRAP CATCHER
7305  047362  000002                          RTI
7306
7307  047364  062706  000004          10$:    ADD     #4,SP           ;ADJUST STACK
7308  047370  104015                          ERROR   15              ;REPORT ERROR
7309  047372  013701  002000          15$:    MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
7310  047376  010111                          MOV     R1,(R1)
7311  047400  062721  000002                  ADD     #2,(R1)+
7312  047404  005011                          CLR     (R1)
7313
7314
7315                                  .SBTTL  **SILO  TESTS
7316
7317                                  ;;*****************************************************************
7318                                  ;*TEST 64        READ SILO WHEN EMPTY
7319                                  ;*
7320                                  ;*      READ SILO WHEN EMPTY.  CHECK FOR DATA LATE AND CONTROLLER
7321                                  ;*      ERROR.  ISSUE CONTROLLER CLEAR AND CHECK IF ERROR RESET.
7322                                  ;*
7323                                  ;*****************************************************************
7324  047406  000004                  TST64:  SCOPE
7325  047410  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7326  047416  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
7327  047422  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7328  047430  005762  000024                  TST     RKDB(R2)        ;READ DATA BUFFER
7329  047434  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
7330  047442  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
```

```
7331  047450  012737  100100  001750          MOV     #DLT!IR,E.CS2   ;LOAD EXPECTED CS2
7332  047456  012737  100200  001740          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
7333  047464  023737  001750  001710          CMP     E.CS2,T.CS2     ;CHECK FOR DAT LATE SET
7334  047472  001401                          BEQ     1$              ;YES, CHECK FOR CONTROLLER ERROR
7335  047474  104016                          ERROR   16              ;CS2 INCORRECT AFTER READING
7336                                                                  ;  EMPTY SILO
7337  047476  023737  001740  001700  1$:     CMP     E.CS1,T.CS1     ;CHECK FOR CONTROLLER ERROR
7338  047504  001401                          BEQ     2$              ;YES, CLEAR DATA LATE
7339  047506  104017                          ERROR   17              ;CS1 INCORRECT AFTER REQUIRE
7340                                                                  ;  EMPTY SILO
7341  047510  012762  100000  000000  2$:     MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7342  047516  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
7343  047524  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
7344  047532  012737  000200  001740          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
7345  047540  012737  000100  001750          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
7346  047546  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK TO CONTROLLER ERROR RESET
7347  047554  001401                          BEQ     3$              ;YES, CHECK IF DATA LATE RESET
7348  047556  104020                          ERROR   20              ;CS1 INCORRECT AFTER ATTEMPTING
7349                                                                  ;  TO CLEAR DATA LATE
7350  047560  023737  001750  001710  3$:     CMP     E.CS2,T.CS2     ;CHECK IF DATA LATE RESET
7351  047566  001401                          BEQ     TST65           ;YES, GO ON TO NEXT TEST
7352  047570  104021                          ERROR   21              ;CS2 INCORRECT AFTER ATTEMPTING
7353                                                                  ;  TO OCCUR DATA LATE
7354
7355                    ;*****************************************************************
7356                    ;*TEST 65       SILO LOADING AND UNLOADING OF ONE WORD
7357                    ;*
7358                    ;*      ISSUE A CONTROLLER CLEAR TO INITIALIZE RK611 CONTROLLER.
7359                    ;*      CLEAR WORD COUNT REGISTER.
7360                    ;*
7361                    ;*      WRITE A WORD OF 177777 INTO THE SILO.  CHECK ALL OTHER
7362                    ;*      REGISTERS FOR INTERACTION PROBLEMS.  CHECK THAT OUTPUT
7363                    ;*      READY IS SET IN COMMAND AND STATUS REGISTER 2.  IF NOT
7364                    ;*      WAIT A REASONABLE TIME FOR IT.
7365                    ;*
7366                    ;*      IF OUTPUT READY COMES UP IN A REASONABLE TIME, READ BACK
7367                    ;*      CONTENTS AND MAKE SURE IT IS 177777.  CHECK FOR NO CONTROLLER
7368                    ;*      ERROR, NO DATA LATE, INPUT READY SET, OUTPUT READY RESET.
7369                    ;*      NOW READ ANOTHER WORD FROM THE SILO TO MAKE SURE DATA
7370                    ;*      LATE AND CONTROLLER ERROR SET.
7371                    ;*
7372                    ;*****************************************************************
7373  047572  000004                  TST65:  SCOPE
7374  047574  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7375  047602  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7376  047610  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG
7377  047614  012737  177777  002010          MOV     #177777,CONFIG  ;LOAD CONFIGURATION FOR PRINT OUT
7378  047622  012762  177777  000024          MOV     #177777,RKDB(R2)        ;WRITE DATA BUFFER WITH ALL 1'S
7379  047630  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG 1
7380  047636  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
7381  047644  001407                          BEQ     1$              ;YES,CHECK BUS AND REG
7382  047646  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
7383  047654  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSSAGE
7384  047662  104003                          ERROR   3
7385  047664  016237  000004  001126  1$:     MOV     RKBA(R2),$BDDAT ;STORE BUS AND
7386  047672  001406                          BEQ     2$              ;CHECK IF ZERO
```

```
7387  047674  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7388  047700  012737  067365  001322            MOV     #EM1019,EM3N+2          ;LOAD ERROR MESSAGE
7389  047706  104003                            ERROR   3
7390  047710  016237  000002  001126  2$:       MOV     RKWC(R2),$BDDAT         ;STORE WORD COUNT REG
7391  047716  001406                            BEQ     3$                      ;CHECK IF ZERO
7392  047720  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7393  047724  012737  067335  001322            MOV     #EM1018,EM3N+2          ;LOAD ERROR MESSAGE
7394  047732  104003                            ERROR   3
7395  047734  016237  000006  001126  3$:       MOV     RKDA(R2),$BDDAT         ;STORE DESK ADDRESS REG
7396  047742  001406                            BEQ     4$                      ;CHECK IF ZERO
7397  047744  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7398  047750  012737  067412  001322            MOV     #EM1020,EM3N+2          ;LOAD ERROR MESSAGE
7399  047756  104003                            ERROR   3
7400  047760  016237  000016  001126  4$:       MOV     RKASOF(R2),$BDDAT               ;STORE ATTENTION SUMMARY AND OFFSET
7401  047766  001406                            BEQ     5$                      ;CHECK IF ZERO
7402  047770  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7403  047774  012737  067702  001322            MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
7404  050002  104003                            ERROR   3
7405  050004  012700  000005          5$:       MOV     #5,R0                   ;LOAD COUNTER TO WAIT FOR OUTPUT READY
7406  050010  005300                  6$:       DEC     R0
7407  050012  001376                            BNE     6$
7408  050014  016237  000010  001126            MOV     RKCS2(R2),$BDDAT                ;STORE COMMAND AND STATUS REG. 2
7409  050022  022737  000300  001126            CMP     #IR!OR,$BDDAT           ;CHECK IF CS2 CORRECT
7410  050030  001407                            BEQ     7$                      ;YES, CONTINUE TEST
7411  050032  012737  000300  001124            MOV     #IR!OR,$GDDAT           ;LOAD EXPECTED CONTENTS
7412  050040  012737  066704  001322            MOV     #EM1004,EM3N+2          ;LOAD ERROR MESSAGE
7413  050046  104003                            ERROR   3
7414  050050  016237  000012  001126  7$:       MOV     RKDS(R2),$BDDAT         ;STORE DRIVE STATUS REG.
7415  050056  001406                            BEQ     8$                      ;CHECK IF ZERO
7416  050060  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7417  050064  012737  067471  001322            MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
7418  050072  104003                            ERROR   3
7419  050074  016237  000014  001126  8$:       MOV     RKER(R2),$BDDAT         ;STORE ERROR REGISTER
7420  050102  001406                            BEQ     9$                      ;CHECK IF ZERO
7421  050104  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7422  050110  012737  067527  001322            MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
7423  050116  104003                            ERROR   3
7424  050120  016237  000020  001126  9$:       MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADDRESS REG.
7425  050126  001406                            BEQ     11$                     ;CHECK IF ZERO
7426  050130  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7427  050134  012737  067624  001322            MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
7428  050142  104003                            ERROR   3
7429  050144  016237  000026  001126  11$:      MOV     RKMR1(R2),$BDDAT                ;STORE MAINTENANCE REG. 1
7430  050152  012737  002000  001124            MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
7431  050160  032737  020000  001126            BIT     #ECCW,$BDDAT
7432  050166  001403                            BEQ     12$
7433  050170  052737  020000  001124            BIS     #ECCW,$GDDAT
7434  050176  023737  001124  001126  12$:      CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
7435  050204  001404                            BEQ     13$                     ;YES, CONTINUE
7436  050206  012737  067651  001322            MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
7437  050214  104003                            ERROR   3
7438  050216  016237  000032  001126  13$:      MOV     RKECPT(R2),$BDDAT               ;STORE ECC PATTERN REG.
7439  050224  001406                            BEQ     14$                     ;CHECK IF ZERO
7440  050226  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7441  050232  012737  067044  001322            MOV     #EM1008,EM3N+2          ;LOAD ERROR MESSAGE
7442  050240  104003                            ERROR   3
```

```
7443  050242  016237  000030  001126  14$:    MOV     RKECPS(R2),$BDDAT       ;STORE REC POSITION REC
7444  050250  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF POSITION CORRECT
7445  050256  001407                          BEQ     15$             ;YES, CONTINUE
7446  050260  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
7447  050266  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
7448  050274  104003                          ERROR   3
7449  050276  016237  000024  001126  15$:    MOV     RKDB(R2),$BDDAT ;STORE DATA BUFFER
7450  050304  022737  177777  001126          CMP     #177777,$BDDAT  ;CHECK CONTENTS CORRECT
7451  050312  001407                          BEQ     16$             ;YES, CHECK TO MAKE SURE
7452                                                                  ;  DATA LATE RESET AND
7453                                                                  ;  CONTROLLER ERROR RESET
7454  050314  012737  177777  001124          MOV     #177777,$GDDAT  ;LOAD EXPECTED CONTENTS
7455  050322  012737  067044  001322          MOV     #EM1008,EM3N+2  ;LOAD ERROR MESSAGE
7456  050330  104003                          ERROR   3
7457  050332  016237  000000  001700  16$:    MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
7458  050340  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
7459  050346  012737  000200  001740          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
7460  050354  012737  000100  001750          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
7461  050362  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
7462  050370  001401                          BEQ     17$             ;YES CHECK OUTPUT READY RESET
7463  050372  104022                          ERROR   22              ;ATTEMPTING TO READ SILO CONTAINING
7464                                                                  ;  ONE WORD - CS1 INCORRECT
7465  050374  023737  001750  001710  17$:    CMP     E.CS2,T.CS2     ;CHECK IN OUTPUT READY RESET
7466  050402  001401                          BEQ     18$             ;YES, READ AN EXTRA WORD
7467  050404  104023                          ERROR   23              ;ATTEMPTING TO READ SILO COMMAND
7468                                                                  ;  ONE WORD - CS2 INCORRECT
7469  050406  005762  000024          18$:    TST     RKDB(R2)        ;READ DATA BUFFER
7470  050412  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 7
7471  050420  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
7472  050426  012737  100200  001740          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
7473  050434  012737  100100  001750          MOV     #DLT!IR,E.CS2   ;LOAD EXPECTED CS2
7474  050442  023737  001750  001710          CMP     E.CS2,T.CS2     ;CHECK IF DATA LATE SET
7475  050450  001401                          BEQ     19$             ;YES, CHECK IF CONTROLLER ERROR
7476                                                                  ;  SET
7477  050452  104016                          ERROR   16              ;ATTEMPTING TO READ SILO WHEN
7478                                                                  ;  EMPTY - CS2 INCORRECT
7479  050454  023737  001740  001700  19$:    CMP     E.CS1,T.CS1     ;CHECK IF CONTROLLER ERROR SET
7480  050462  001401                          BEQ     20$             ;YES, CLEAR CONTROLLER
7481  050464  104017                          ERROR   17              ;ATTEMPTING TO READ SILO WHEN
7482                                                                  ;  EMPTY - CS1 INCORRECT
7483  050466  012762  100000  000000  20$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7484
7485                                  ;;*****************************************************************
7486                                  ;*TEST 66        ONE WORD SILO WRITE AND REG. INTERACTION (PART 1)
7487                                  ;*
7488                                  ;*      ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
7489                                  ;*      ZERO.
7490                                  ;*
7491                                  ;*      WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERACTION
7492                                  ;*      PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
7493                                  ;*      STATUS REGISTER 2.  IF NOT WAIT.
7494                                  ;*
7495                                  ;*      IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
7496                                  ;*      IF CORRECT.
7497                                  ;*
7498                                  ;*      THE FOLLOWING CONFIGURATIONS ARE USED:
```

```
                                        ;*
                                        ;*      000000  000010  000200  004000  100000
                                        ;*      000001  000020  000400  010000
                                        ;*      000002  000040  001000  020000
                                        ;*      000004  000100  002000  040000
                                        ;*
                                        ;**************************************************************
050474  000004                    TST66:  SCOPE
050476  012737  000764  001200            MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
050504  012737  065565  001320            MOV     #EM33,EM3N      ;LOAD ERROR MESSAGE FOR PRINT OUT
050512  012737  000001  002010            MOV     #000001,CONFIG  ;LOAD INITIAL CONFIGURATION
050520  012701  000021                    MOV     #17.,R1         ;LOAD CONFIGURATION COUNT
050524  012737  050532  001110            MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
                                
050532                          1$:
050532  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
050540  005062  000002                    CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
050544  013762  002010  000024            MOV     CONFIG,RKDB(R2) ;WRITE DATA BUFFER
050552  016237  000000  001126            MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.1
050560  022737  000200  001126            CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
050566  001407                            BEQ     2$              ;YES, CHECK OTHER REGISTERS
050570  012737  000200  001124            MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
050576  012737  067314  001322            MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
050604  104003                            ERROR   3
050606  016237  000004  001126    2$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS
050614  001406                            BEQ     3$              ;CHECK IF ZERO
050616  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
050622  012737  067365  001322            MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
050630  104003                            ERROR   3
050632  016237  000002  001126    3$:     MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
050640  001406                            BEQ     4$              ;CHECK IF ZERO
050642  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
050646  012737  067335  001322            MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
050654  104003                            ERROR   3
050656  016237  000006  001126    4$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG
050664  001406                            BEQ     5$              ;CHECK IF ZERO
050666  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
050672  012737  067412  001322            MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
050700  104003                            ERROR   3
050702  016237  000016  001126    5$:     MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY AND OFFSET
050710  001406                            BEQ     6$              ;CHECK IF ZERO
050712  005037  001124                    CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
050716  012737  067556  001322            MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
050724  104003                            ERROR   3
050726  012700  000005            6$:     MOV     #5,R0           ;LOAD COUNTER TO WAIT FOR
050732  005300                    7$:     DEC     R0              ;  OUTPUT READY
050734  001376                            BNE     7$
050736  016237  000010  001126            MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG 2
050744  022737  000300  001126            CMP     #IR!OR,$BDDAT   ;CHECK IF CS2 CORRECT
050752  001407                            BEQ     8$              ;YES, CONTINUE TEST
050754  012737  000300  001124            MOV     #IR!OR,$GDDAT   ;LOAD EXPECTED CONTENTS
050762  012737  066704  001322            MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
050770  104003                            ERROR   3
050772  016237  000012  001126    8$:     MOV     RKDS(R2),$BDDAT ;STORE PRIVE STATUS REG
051000  001406                            BEQ     9$              ;CHECK IF ZERO
```

```
7555  051002  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7556  051006  012737  067471  001322            MOV     #EM1022,EM3N+2          ;LOAD ERROR MESSAGE
7557  051014  104003                            ERROR   3
7558  051016  016237  000014  001126  9$:       MOV     RKER(R2),$BDDAT         ;STORE ERROR REGISTER
7559  051024  001406                            BEQ     10$                     ;CHECK IF ZERO
7560  051026  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7561  051032  012737  067527  001322            MOV     #EM1023,EM3N+2          ;LOAD ERROR MESSAGE
7562  051040  104003                            ERROR   3
7563  051042  016237  000020  001126  10$:      MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADDRESS REG
7564  051050  001406                            BEQ     12$                     ;CHECK IF ZERO
7565  051052  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7566  051056  012737  067624  001322            MOV     #EM1025,EM3N+2          ;LOAD ERROR MESSAGE
7567  051064  104003                            ERROR   3
7568  051066  016237  000026  001126  12$:      MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG. 1
7569  051074  012737  002000  001124            MOV     #MEWD,$GDDAT            ;LOAD EXPECTED MR1
7570  051102  032737  020000  001126            BIT     #ECCW,$BDDAT
7571  051110  001403                            BEQ     13$
7572  051112  052737  020000  001124            BIS     #ECCW,$GDDAT
7573  051120  023737  001124  001126  13$:      CMP     $GDDAT,$BDDAT           ;CHECK IF MR1 CORRECT
7574  051126  001404                            BEQ     14$                     ;YES,CONTINUE
7575  051130  012737  067651  001322            MOV     #EM1026,EM3N+2          ;LOAD ERROR MESSAGE
7576  051136  104003                            ERROR   3
7577  051140  016237  000032  001126  14$:      MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
7578  051146  001406                            BEQ     15$                     ;CHECK IF ZERO
7579  051150  005037  001124                    CLR     $GDDAT                  ;LOAD EXPECTED CONTENTS
7580  051154  012737  067727  001322            MOV     #EM1030,EM3N+2          ;LOAD ERROR MESSAGE
7581  051162  104003                            ERROR   3
7582  051164  016237  000030  001126  15$:      MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
7583  051172  022737  004066  001126            CMP     #4066,$BDDAT            ;CHECK IF ECC POSITION REG CORRECT
7584  051200  001407                            BEQ     16$                     ;YES, CHECK DATA BUFFER
7585  051202  012737  004066  001124            MOV     #4066,$GDDAT            ;LOAD EXPECTED CONTENTS
7586  051210  012737  067702  001322            MOV     #EM1029,EM3N+2          ;LOAD ERROR MESSAGE
7587  051216  104003                            ERROR   3
7588  051220  016237  000024  001126  16$:      MOV     RKDB(R2),$BDDAT         ;STORE DATA BUFFER
7589  051226  023737  002010  001126            CMP     CONFIG,$BDDAT           ;CHECK FOR CORRECT CONTENTS
7590  051234  001407                            BEQ     17$                     ;YES, CHECK IF FINISHED
7591  051236  013737  002010  001124            MOV     CONFIG,$GDDAT           ;LOAD EXPECTED CONTENTS
7592  051244  012737  067044  001322  .         MOV     #EM1008,EM3N+2          ;LOAD ERROR MESSAGE
7593  051252  104003                            ERROR   3
7594  051254  104415                  17$:      SCOP1                           ;CHECK IF LOOP ON ERROR
7595  051256  000241                            CLC                             ;SHIFT IN ZERO
7596  051260  006137  002010                    ROL     CONFIG
7597  051264  005301                            DEC     R1                      ;CHECK IF FINISHED
7598  051266  001402                            BEQ     TST67                   ;;YES, GO ON TO NEXT TEST
7599  051270  000137  050532                    JMP     1$
7600
7601                                    ;;*********************************************************************
7602                                    ;*TEST 67       ONE WORD SILO WRITE AND REG. INTERACTION (PART 2)
7603                                    ;*
7604                                    ;*      ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
7605                                    ;*      ZERO.
7606                                    ;*
7607                                    ;*      WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERACTION
7608                                    ;*      PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
7609                                    ;*      STATUS REGISTER 2.  IF NOT WAIT.
7610                                    ;*
```

```
                                        ;*      IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
                                        ;*      IF CORRECT.
                                        ;*
                                        ;*      THE FOLLOWING CONFIGURATIONS ARE USED:
                                        ;*
                                        ;*      177777  177767  177577  173777  077777
                                        ;*      177776  177757  177377  167777
                                        ;*      177775  177737  176777  157777
                                        ;*      177773  177677  175777  137777
                                        ;*
                                        ;**********************************************************************
051274  000004                          TST67:  SCOPE
051276  012737  000764  001200                  MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
051304  012737  065565  001320                  MOV     #EM33,EM3N      ;LOAD ERROR MESSAGE FOR PRINT OUT
051312  012737  177776  002010                  MOV     #177776,CONFIG  ;LOAD INITIAL CONFIGURATION
051320  012701  000021                          MOV     #17.,R1         ;LOAD CONFIGURATION COUNT
051324  012737  051332  001110                  MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
                                        1$:
051332  012762  100000  000000                  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
051340  005062  000002                          CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
051344  013762  002010  000024                  MOV     CONFIG,RKDB(R2) ;WRITE DATA BUFFER
051352  016237  000000  001126                  MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.1
051360  022737  000200  001126                  CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
051366  001407                                  BEQ     2$              ;YES, CHECK OTHER REGISTERS
051370  012737  000200  001124                  MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
051376  012737  067314  001322                  MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
051404  104003                                  ERROR   3
051406  016237  000004  001126          2$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS
051414  001406                                  BEQ     3$              ;CHECK IF ZERO
051416  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
051422  012737  067365  001322                  MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
051430  104003                                  ERROR   3
051432  016237  000002  001126          3$:     MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
051440  001406                                  BEQ     4$              ;CHECK IF ZERO
051442  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
051446  012737  067335  001322                  MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
051454  104003                                  ERROR   3
051456  016237  000006  001126          4$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG
051464  001406                                  BEQ     5$              ;CHECK IF ZERO
051466  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
051472  012737  067412  001322                  MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
051500  104003                                  ERROR   3
051502  016237  000016  001126          5$:     MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY AND OFFSET
051510  001406                                  BEQ     6$              ;CHECK IF ZERO
051512  005037  001124                          CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
051516  012737  067556  001322                  MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
051524  104003                                  ERROR   3
051526  012700  000005                  6$:     MOV     #5,R0           ;LOAD COUNTER TO WAIT FOR
051532  005300                          7$:     DEC     R0              ;  OUTPUT READY
051534  001376                                  BNE     7$
051536  016237  000010  001126                  MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG 2
051544  022737  000300  001126                  CMP     #IR!OR,$BDDAT   ;CHECK IF CS2 CORRECT
051552  001407                                  BEQ     8$              ;YES, CONTINUE TEST
051554  012737  000300  001124                  MOV     #IR!OR,$GDDAT   ;LOAD EXPECTED CONTENTS
```

```
 7667  051562  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
 7668  051570  104003                          ERROR   3
 7669  051572  016237  000012  001126  8$:     MOV     RKDS(R2),$BDDAT ;STORE PRIVE STATUS REG
 7670  051600  001406                          BEQ     9$              ;CHECK IF ZERO
 7671  051602  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7672  051606  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 7673  051614  104003                          ERROR   3
 7674  051616  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REGISTER
 7675  051624  001406                          BEQ     10$             ;CHECK IF ZERO
 7676  051626  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7677  051632  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 7678  051640  104003                          ERROR   3
 7679  051642  016237  000020  001126  10$:    MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADDRESS REG
 7680  051650  001406                          BEQ     12$             ;CHECK IF ZERO
 7681  051652  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7682  051656  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 7683  051664  104003                          ERROR   3
 7684  051666  016237  000026  001126  12$:    MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG. 1
 7685  051674  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 7686  051702  032737  020000  001126          BIT     #ECCW,$BDDAT
 7687  051710  001403                          BEQ     13$
 7688  051712  052737  020000  001124          BIS     #ECCW,$GDDAT
 7689  051720  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 7690  051726  001404                          BEQ     14$             ;YES,CONTINUE
 7691  051730  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 7692  051736  104003                          ERROR   3
 7693  051740  016237  000032  001126  14$:    MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
 7694  051746  001406                          BEQ     15$             ;CHECK IF ZERO
 7695  051750  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7696  051754  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 7697  051762  104003                          ERROR   3
 7698  051764  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
 7699  051772  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION REG CORRECT
 7700  052000  001407                          BEQ     16$             ;YES, CHECK DATA BUFFER
 7701  052002  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
 7702  052010  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 7703  052016  104003                          ERROR   3
 7704  052020  016237  000024  001126  16$:    MOV     RKDB(R2),$BDDAT ;STORE DATA BUFFER
 7705  052026  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK FOR CORRECT CONTENTS
 7706  052034  001407                          BEQ     17$             ;YES, CHECK IF FINISHED
 7707  052036  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED CONTENTS
 7708  052044  012737  067044  001322          MOV     #EM1008,EM3N+2  ;LOAD ERROR MESSAGE
 7709  052052  104003                          ERROR   3
 7710  052054  104415                  17$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 7711  052056  000261                          SEC                     ;SHIFT IN ONE
 7712  052060  006137  002010                  ROL     CONFIG
 7713  052064  005301                          DEC     R1              ;CHECK IF FINISHED
 7714  052066  001402                          BEQ     TST70           ;;YES, GO ON TO NEXT TEST
 7715  052070  000137  051332                  JMP     1$
 7716
 7717                                  ;;*****************************************************************
 7718                                  ;*TEST 70        ONE WORD SILO WRITE AND REG. INTERACTION (PART 3)
 7719                                  ;*
 7720                                  ;*      ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
 7721                                  ;*      ZERO.
 7722                                  ;*
```

```
                                        ;*      WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERACTION
                                        ;*      PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
                                        ;*      STATUS REGISTER 2.  IF NOT WAIT.
                                        ;*
                                        ;*      IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
                                        ;*      IF CORRECT.
                                        ;*
                                        ;*      THE FOLLOWING CONFIGURATIONS ARE USED:
                                        ;*
                                        ;*      000001  000037  000777  017777  000000
                                        ;*      000003  000077  001777  037777
                                        ;*      000007  000177  003777  077777
                                        ;*      000017  000377  007777  177777
                                        ;*
                                        ;;*****************************************************************
052074  000004                  TST70:  SCOPE
052076  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
052104  012737  065565  001320          MOV     #EM33,EM3N      ;LOAD ERROR MESSAGE FOR PRINT OUT
052112  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
052116  012701  000021                  MOV     #17.,R1         ;LOAD CONFIGURATION COUNT
052122  012737  052130  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
052130                          1$:
052130  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
052136  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
052142  013762  002010  000024          MOV     CONFIG,RKDB(R2) ;WRITE DATA BUFFER
052150  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.1
052156  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
052164  001407                          BEQ     2$              ;YES, CHECK OTHER REGISTERS
052166  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
052174  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
052202  104003                          ERROR   3
052204  016237  000004  001126  2$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS
052212  001406                          BEQ     3$              ;CHECK IF ZERO
052214  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
052220  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
052226  104003                          ERROR   3
052230  016237  000002  001126  3$:     MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
052236  001406                          BEQ     4$              ;CHECK IF ZERO
052240  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
052244  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
052252  104003                          ERROR   3
052254  016237  000006  001126  4$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG
052262  001406                          BEQ     5$              ;CHECK IF ZERO
052264  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
052270  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
052276  104003                          ERROR   3
052300  016237  000016  001126  5$:     MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY AND OFFSET
052306  001406                          BEQ     6$              ;CHECK IF ZERO
052310  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
052314  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
052322  104003                          ERROR   3
052324  012700  000005          6$:     MOV     #5,R0           ;LOAD COUNTER TO WAIT FOR
052330  005300                  7$:     DEC     R0              ;  OUTPUT READY
052332  001376                          BNE     7$
```

```
 7779  052334  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG 2
 7780  052342  022737  000300  001126          CMP     #IR!OR,$BDDAT   ;CHECK IF CS2 CORRECT
 7781  052350  001407                          BEQ     8$              ;YES, CONTINUE TEST
 7782  052352  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;LOAD EXPECTED CONTENTS
 7783  052360  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
 7784  052366  104003                          ERROR   3
 7785  052370  016237  000012  001126  8$:     MOV     RKDS(R2),$BDDAT ;STORE PRIVE STATUS REG
 7786  052376  001406                          BEQ     9$              ;CHECK IF ZERO
 7787  052400  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7788  052404  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
 7789  052412  104003                          ERROR   3
 7790  052414  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REGISTER
 7791  052422  001406                          BEQ     10$             ;CHECK IF ZERO
 7792  052424  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7793  052430  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
 7794  052436  104003                          ERROR   3
 7795  052440  016237  000020  001126  10$:    MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADDRESS REG
 7796  052446  001406                          BEQ     12$             ;CHECK IF ZERO
 7797  052450  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7798  052454  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
 7799  052462  104003                          ERROR   3
 7800  052464  016237  000026  001126  12$:    MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG. 1
 7801  052472  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
 7802  052500  032737  020000  001126          BIT     #ECCW,$BDDAT
 7803  052506  001403                          BEQ     13$
 7804  052510  052737  020000  001124          BIS     #ECCW,$GDDAT
 7805  052516  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
 7806  052524  001404                          BEQ     14$             ;YES,CONTINUE
 7807  052526  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
 7808  052534  104003                          ERROR   3
 7809  052536  016237  000032  001126  14$:    MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
 7810  052544  001406                          BEQ     15$             ;CHECK IF ZERO
 7811  052546  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
 7812  052552  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
 7813  052560  104003                          ERROR   3
 7814  052562  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
 7815  052570  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION REG CORRECT
 7816  052576  001407                          BEQ     16$             ;YES, CHECK DATA BUFFER
 7817  052600  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
 7818  052606  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
 7819  052614  104003                          ERROR   3
 7820  052616  016237  000024  001126  16$:    MOV     RKDB(R2),$BDDAT ;STORE DATA BUFFER
 7821  052624  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK FOR CORRECT CONTENTS
 7822  052632  001407                          BEQ     17$             ;YES, CHECK IF FINISHED
 7823  052634  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED CONTENTS
 7824  052642  012737  067044  001322          MOV     #EM1008,EM3N+2  ;LOAD ERROR MESSAGE
 7825  052650  104003                          ERROR   3
 7826  052652  104415                  17$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 7827  052654  000261                          SEC                     ;SHIFT IN ONE
 7828  052656  006137  002010                  ROL     CONFIG
 7829  052662  005301                          DEC     R1              ;CHECK IF FINISHED
 7830  052664  001402                          BEQ     TST71           ;;YES, GO ON TO NEXT TEST
 7831  052666  000137  052130                  JMP     1$
 7832
 7833                                  ;;*****************************************************************
 7834                                  ;*TEST 71        ONE WORD SILO WRITE AND REG. INTERACTION (PART 4)
```

```
                                        ;*
                                        ;*      ISSUE CONTROLLER CLEAR AND WRITE WORD COUNT REGISTER TO
                                        ;*      ZERO.
                                        ;*
                                        ;*      WRITE ONE WORD IN SILO.  CHECK ALL REGISTERS FOR INTERACTION
                                        ;*      PROBLEMS.  CHECK THAT OUTPUT READY IS SET IN COMMAND AND
                                        ;*      STATUS REGISTER 2.  IF NOT WAIT.
                                        ;*
                                        ;*      IF OUTPUT READY READY SETS READ BACK CONTENTS, AND CHECK
                                        ;*      IF CORRECT.
                                        ;*
                                        ;*      THE FOLLOWING CONFIGURATIONS ARE USED:
                                        ;*
                                        ;*      100000  174000  177600  177770  000000
                                        ;*      140000  176000  177700  177774
                                        ;*      160000  177000  177740  177776
                                        ;*      170000  177400  177760  177777
                                        ;*
                                        ;**************************************************************************
052672  000004                  TST71:  SCOPE
052674  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
052702  012737  065565  001320          MOV     #EM33,EM3N      ;LOAD ERROR MESSAGE FOR PRINT OUT
052710  005037  002010                  CLR     CONFIG          ;LOAD INITIAL CONFIGURATION
052714  012701  000021                  MOV     #17.,R1         ;LOAD CONFIGURATION COUNT
052720  012737  052726  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
052726                          1$:
052726  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
052734  005062  000002                  CLR     RKWC(R2)        ;CLEAR WORD COUNT REG.
052740  013762  002010  000024          MOV     CONFIG,RKDB(R2) ;WRITE DATA BUFFER
052746  016237  000000  001126          MOV     RKCS1(R2),$BDDAT        ;STORE COMMAND AND STATUS REG.1
052754  022737  000200  001126          CMP     #RDY,$BDDAT     ;CHECK IF CS1 CORRECT
052762  001407                          BEQ     2$              ;YES, CHECK OTHER REGISTERS
052764  012737  000200  001124          MOV     #RDY,$GDDAT     ;LOAD EXPECTED CONTENTS
052772  012737  067314  001322          MOV     #EM1017,EM3N+2  ;LOAD ERROR MESSAGE
053000  104003                          ERROR   3
053002  016237  000004  001126  2$:     MOV     RKBA(R2),$BDDAT ;STORE BUS ADDRESS
053010  001406                          BEQ     3$              ;CHECK IF ZERO
053012  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
053016  012737  067365  001322          MOV     #EM1019,EM3N+2  ;LOAD ERROR MESSAGE
053024  104003                          ERROR   3
053026  016237  000002  001126  3$:     MOV     RKWC(R2),$BDDAT ;STORE WORD COUNT REG.
053034  001406                          BEQ     4$              ;CHECK IF ZERO
053036  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
053042  012737  067335  001322          MOV     #EM1018,EM3N+2  ;LOAD ERROR MESSAGE
053050  104003                          ERROR   3
053052  016237  000006  001[illegible]  4$:     MOV     RKDA(R2),$BDDAT ;STORE DISK ADDRESS REG
053060  001406                          BEQ     5$              ;CHECK IF ZERO
053062  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
053066  012737  067412  001322          MOV     #EM1020,EM3N+2  ;LOAD ERROR MESSAGE
053074  104003                          ERROR   3
053076  016237  000016  001126  5$:     MOV     RKASOF(R2),$BDDAT       ;STORE ATTENTION SUMMARY AND OFFSET
053104  001406                          BEQ     6$              ;CHECK IF ZERO
053106  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
053112  012737  067556  001322          MOV     #EM1024,EM3N+2  ;LOAD ERROR MESSAGE
```

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7891  053120  104003                          ERROR   3
7892  053122  012700  000005          6$:     MOV     #5,R0           ;LOAD COUNTER TO WAIT FOR
7893  053126  005300                  7$:     DEC     R0              ;  OUTPUT READY
7894  053130  001376                          BNE     7$
7895  053132  016237  000010  001126          MOV     RKCS2(R2),$BDDAT        ;STORE COMMAND AND STATUS REG 2
7896  053140  022737  000300  001126          CMP     #IR!OR,$BDDAT   ;CHECK IF CS2 CORRECT
7897  053146  001407                          BEQ     8$              ;YES, CONTINUE TEST
7898  053150  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;LOAD EXPECTED CONTENTS
7899  053156  012737  066704  001322          MOV     #EM1004,EM3N+2  ;LOAD ERROR MESSAGE
7900  053164  104003                          ERROR   3
7901  053166  016237  000012  001126  8$:     MOV     RKDS(R2),$BDDAT ;STORE PRIVE STATUS REG
7902  053174  001406                          BEQ     9$              ;CHECK IF ZERO
7903  053176  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
7904  053202  012737  067471  001322          MOV     #EM1022,EM3N+2  ;LOAD ERROR MESSAGE
7905  053210  104003                          ERROR   3
7906  053212  016237  000014  001126  9$:     MOV     RKER(R2),$BDDAT ;STORE ERROR REGISTER
7907  053220  001406                          BEQ     10$             ;CHECK IF ZERO
7908  053222  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
7909  053226  012737  067527  001322          MOV     #EM1023,EM3N+2  ;LOAD ERROR MESSAGE
7910  053234  104003                          ERROR   3
7911  053236  016237  000020  001126  10$:    MOV     RKDCYL(R2),$BDDAT       ;STORE CYLINDER ADDRESS REG
7912  053244  001406                          BEQ     12$             ;CHECK IF ZERO
7913  053246  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
7914  053252  012737  067624  001322          MOV     #EM1025,EM3N+2  ;LOAD ERROR MESSAGE
7915  053260  104003                          ERROR   3
7916  053262  016237  000026  001126  12$:    MOV     RKMR1(R2),$BDDAT        ;STORE MAINTENANCE REG. 1
7917  053270  012737  002000  001124          MOV     #MEWD,$GDDAT    ;LOAD EXPECTED MR1
7918  053276  032737  020000  001126          BIT     #ECCW,$BDDAT
7919  053304  001403                          BEQ     13$
7920  053306  052737  020000  001124          BIS     #ECCW,$GDDAT
7921  053314  023737  001124  001126  13$:    CMP     $GDDAT,$BDDAT   ;CHECK IF MR1 CORRECT
7922  053322  001404                          BEQ     14$             ;YES CONTINUE
7923  053324  012737  067651  001322          MOV     #EM1026,EM3N+2  ;LOAD ERROR MESSAGE
7924  053332  104003                          ERROR   3
7925  053334  016237  000032  001126  14$:    MOV     RKECPT(R2),$BDDAT       ;STORE ECC PATTERN REG.
7926  053342  001406                          BEQ     15$             ;CHECK IF ZERO
7927  053344  005037  001124                  CLR     $GDDAT          ;LOAD EXPECTED CONTENTS
7928  053350  012737  067727  001322          MOV     #EM1030,EM3N+2  ;LOAD ERROR MESSAGE
7929  053356  104003                          ERROR   3
7930  053360  016237  000030  001126  15$:    MOV     RKECPS(R2),$BDDAT       ;STORE ECC POSITION REG.
7931  053366  022737  004066  001126          CMP     #4066,$BDDAT    ;CHECK IF ECC POSITION REG CORRECT
7932  053374  001407                          BEQ     16$             ;YES, CHECK DATA BUFFER
7933  053376  012737  004066  001124          MOV     #4066,$GDDAT    ;LOAD EXPECTED CONTENTS
7934  053404  012737  067702  001322          MOV     #EM1029,EM3N+2  ;LOAD ERROR MESSAGE
7935  053412  104003                          ERROR   3
7936  053414  016237  000024  001126  16$:    MOV     RKDB(R2),$BDDAT ;STORE DATA BUFFER
7937  053422  023737  002010  001126          CMP     CONFIG,$BDDAT   ;CHECK FOR CORRECT CONTENTS
7938  053430  001407                          BEQ     17$             ;YES, CHECK IF FINISHED
7939  053432  013737  002010  001124          MOV     CONFIG,$GDDAT   ;LOAD EXPECTED CONTENTS
7940  053440  012737  067044  001322          MOV     #EM1008,EM3N+2  ;LOAD ERROR MESSAGE
7941  053446  104003                          ERROR   3
7942  053450  104415                  17$:    SCOP1                   ;CHECK IF LOOP ON ERROR
7943  053452  000261                          SEC                     ;SHIFT IN ONE
7944  053454  006037  002010                  ROR     CONFIG
7945  053460  005301                          DEC     R1              ;CHECK IF FINISHED
7946  053462  001402                          BEQ     TST72           ;;YES, GO ON TO NEXT TEST
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7947  053464  000137  052726                        JMP     1$
7948
7949                                          ;;*****************************************************************
7950                                          ;*TEST 72       SILO FILL
7951                                          ;*
7952                                          ;*       THIS TEST WILL WRITE THE SILO WITH 66 DIFFERENT PATTERNS
7953                                          ;*       CHECK INPUT READY, OUTPUT READY, AND DATA LATE FOR EACH
7954                                          ;*       WORD WRITTEN.  IT WILL THEN READ ALL 66 WORDS BACK CHECKING
7955                                          ;*       CONTENTS, INPUT READY, OUTPUT READY, AND DATA LATE FOR EACH
7956                                          ;*       WORD READ.  AN EXTRA READ IS THEN DONE TO MAKE SURE THE
7957                                          ;*       SILO IS EMPTY.
7958                                          ;*
7959                                          ;*****************************************************************
7960  053470  000004                  TST72:  SCOPE
7961  053472  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
7962  053500  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
7963  053504  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
7964  053512  012703  070754                  MOV     #SILO,R3        ;LOAD ADDRESS OF INPUT DATA
7965  053516  005037  002022                  CLR     SILCNT          ;CLEAR SILO COUNT
7966  053522  012362  000024                  MOV     (R3)+,RKDB(R2)  ;LOAD SILO
7967  053526  012700  000020                  MOV     #20,R0          ;WAIT FOR OUTPUT READY
7968  053532  005300                  1$:     DEC     R0
7969  053534  001376                          BNE     1$
7970  053536  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
7971  053544  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
7972  053552  012737  000200  001740          MOV     #RDY,E.CS1      ;LOAD EXPECTED COMMAND AND STATUS REG. 1
7973  053560  012737  000300  001750          MOV     #IR!OR,E.CS2    ;LOAD EXPECTED COMMAND AND STATUS REG 2
7974  053566  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
7975  053574  001401                          BEQ     2$              ;YES, CONTINUE
7976  053576  104024                          ERROR   24              ;ATTEMPTING TO WRITE SILO-CS1 INCORRECT
7977  053600  023737  001750  001710  2$:     CMP     E.CS2,T.CS2     ;CHECK IF CS2 CORRECT
7978  053606  001401                          BEQ     3$              ;YES,CONTINUE
7979  053610  104025                          ERROR   25              ;ATTEMPTING TO WRITE SILO-CS2 INCORRECT
7980  053612  005237  002022          3$:     INC     SILCNT          ;INCREMENT SILO COUNT
7981  053616  012362  000024                  MOV     (R3)+,RKDB(R2)  ;LOAD SILO
7982  053622  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
7983  053630  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
7984  053636  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
7985  053644  001401                          BEQ     4$              ;YES, CONTINUE
7986  053646  104024                          ERROR   24              ;ATTEMPTING TO WRITE SILO- CS1 INCORRECT
7987  053650  023737  001750  001710  4$:     CMP     E.CS2,T.CS2     ;CHECK IF CS2 CORRECT
7988  053656  001401                          BEQ     5$              ;YES, CONTINUE
7989  053660  104025                          ERROR   25              ;ATTEMPTING TO WRITE SILO-CS2 INCORRECT
7990  053662  022737  000100  002022  5$:     CMP     #64.,SILCNT     ;CHECK IF ALL EXCEPT LAST WORD WRITTEN
7991  053670  001350                          BNE     3$              ;YES, GO WRITE NEXT WORD
7992  053672  005237  002022                  INC     SILCNT          ;INCREMENT SILO COUNT
7993  053676  011362  000024                  MOV     (R3),RKDB(R2)   ;LOAD SILO
7994  053702  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
7995  053710  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
7996  053716  012737  000200  001750          MOV     #OR,E.CS2       ;LOAD EXPECTED CS2
7997  053724  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
7998  053732  001401                          BEQ     6$              ;YES, CONTINUE
7999  053734  104024                          ERROR   24              ;ATTEMPTING TO WRITE SILO-CS1 INCORRECT
8000  053736  023737  001750  001710  6$:     CMP     E.CS2,T.CS2     ;CHECK IF CS2 CORRECT
8001  053744  001401                          BEQ     7$              ;YES, UNLOAD SILO
8002  053746  104025                          ERROR   25              ;ATTEMPTING TO WRITE SILO-CS1 INCORRECT
```

```
8003  053750  005037  002022          7$:     CLR     SILCNT          ;CLEAR SILO COUNT
8004  053754  012703  070754                  MOV     #SILO,R3        ;LOAD ADDRESS OF INPUT DATA
8005  053760  012737  000300  001750          MOV     #IR!OR,E.CS2    ;LOAD EXPECTED CS2
8006  053766  016237  000024  001126          MOV     RKDB(R2),$BDDAT ;STORE NEXT WORD ON SILO
8007  053774  012700  000020                  MOV     #20,R0          ;WAIT FOR INPUT READY
8008  054000  005300                  8$:     DEC     R0
8009  054002  001376                          BNE     8$
8010  054004  000403                          BR      10$             ;CONTINUE WITH TEST
8011
8012  054006  016237  000024  001126  9$:     MOV     RKDB(R2),$BDDAT ;STORE NEXT WORD ON SILO
8013  054014  016237  000000  001700  10$:    MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
8014  054022  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
8015  054030  012337  001124                  MOV     (R3)+,$GDDAT    ;LOAD EXPECTED DATA
8016  054034  023737  001740  001700          CMP     E.CS1,T.CS1     ;CHECK IF CONTROLLER ERROR RESET
8017  054042  001401                          BEQ     11$             ;YES, CONTINUE
8018  054044  104026                          ERROR   26              ;ATTEMPTING TO READ SILO-CS1 INCORRECT
8019  054046  023737  001750  001710  11$:    CMP     E.CS2,T.CS2     ;CHECK IF OUTPUT READY AND INPUT READY SET
8020  054054  001401                          BEQ     12$             ;YES,CHECK DATA
8021  054056  104027                          ERROR   27              ;ATTEMPTING TO READ SILO-CS2 INCORRECT
8022  054060  023737  001124  001126  12$:    CMP     $GDDAT,$BDDAT   ;CHECK IF SILO CONTENTS CORRECT
8023  054066  001401                          BEQ     13$             ;YES, CHECK IF LAST WORD
8024  054070  104030                          ERROR   30              ;ATTEMPTING TO READ SILO-RKDB INCORRECT
8025  054072  005237  002022          13$:    INC     SILCNT          ;SET UP FOR NEXT WORD
8026  054076  022737  000101  002022          CMP     #65.,SILCNT     ;CHECK READY FOR LAST WORD
8027  054104  101340                          BHI     9$              ;NO, READ NEXT WORD
8028  054106  103404                          BLO     14$             ;CHECK IF SILO EMPTY
8029  054110  012737  000100  001750          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
8030  054116  000733                          BR      9$              ;READ LAST WORD
8031
8032  054120  005762  000024          14$:    TST     RKDB(R2)        ;READ DATA BUFFER
8033  054124  016237  000010  001710          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
8034  054132  016237  000000  001700          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
8035  054140  012737  100100  001750          MOV     #DLT!IR,E.CS2   ;LOAD EXPECTED CS2
8036  054146  012737  100200  001740          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
8037  054154  023737  001750  001710          CMP     E.CS2,T.CS2     ;CHECK FOR DATA LATE SET
8038  054162  001401                          BEQ     15$             ;YES, CHECK FOR CONTROLLER ERROR
8039  054164  104006                          ERROR   6               ;CS2 INCORRECT AFTER LEAVING EMPTY
8040                                                                  ;  SILO
8041  054166  023737  001740  001700  15$:    CMP     E.CS1,T.CS1     ;CHECK FOR CONTROLLER ERROR
8042  054174  001401                          BEQ     16$             ;YES, CLEAR DATA LATE
8043  054176  104017                          ERROR   17              ;CS1 INCORRECT AFTER READING EMPTY
8044                                                                  ;  SILO
8045  054200  012762  100000  000000  16$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
8046
8047                                  ;;*****************************************************************
8048                                  ;*TEST 73        SILO CAPACITY DATA LATE
8049                                  ;*
8050                                  ;*      WRITE 67 WORDS IN THE SILO AND MAKE SURE DATA LATE ONLY
8051                                  ;*      OCCURS ON THE 67TH WORD.  CLEAR RK611 WITH CONTROLLER CLEAR.
8052                                  ;*      CHECK INPUT READY AND OUTPUT READY FOR INITIALIZED STATE.
8053                                  ;*
8054                                  ;;*****************************************************************
8055  054206  000004                  TST73:  SCOPE
8056  054210  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
8057  054216  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
8058  054222  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
```

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8059  054230  012700  000103                MOV     #67.,R0          ;LOAD 67 WORDS INTO SILO CAUSING
8060  054234  012762  177777  000024  1$:   MOV     #177777,RKDB(R2)         ;  DATA LATE
8061  054242  005300                        DEC     R0
8062  054244  001373                        BNE     1$
8063  054246  016237  000010  001710        MOV     RKCS2(R2),T.CS2  ;STORE COMMAND AND STATUS REG 2
8064
8065  054254  016237  000000  001700        MOV     RKCS1(R2),T.CS1  ;STORE COMMAND AND STATUS REG. 1
8066  054262  012737  100200  001750        MOV     #DLT!OR,E.CS2    ;LOAD EXPECTED CS2
8067  054270  012737  100200  001740        MOV     #CERR!RDY,E.CS1  ;LOAD EXPECTED CS1
8068  054276  023737  001750  001710        CMP     E.CS2,T.CS2      ;CHECK IF CS2 CORRECT (DLT)
8069  054304  001401                        BEQ     2$               ;YES, CONTINUE
8070  054306  104031                        ERROR   31               ;CS2 INCORRECT WHEN LOADING FULL SILO
8071  054310  023737  001740  001700  2$:   CMP     E.CS1,T.CS1      ;CHECK IF CS1 CORRECT (CERR)
8072  054316  001401                        BEQ     3$               ;YES, CLEAR CONTROLLER
8073  054320  104032                        ERROR   32               ;CS1 INCORRECT WHEN LOADING FULL SILO
8074  054322  012762  100000  000000  3$:   MOV     #CCLR,RKCS1(R2)  ;CLEAR RK611 CONTROLLER
8075  054330  016237  000000  001700        MOV     RKCS1(R2),T.CS1  ;STORE COMMAND AND STATUS REG.1
8076  054336  016237  000010  001710        MOV     RKCS2(R2),T.CS2  ;STORE COMMAND AND STATUS REG. 2
8077  054344  012737  000200  001740        MOV     #RDY,E.CS1       ;LOAD EXPECTED CS1
8078  054352  012737  000100  001750        MOV     #IR,E.CS2        ;LOAD EXPECTED CS2
8079  054360  023737  001740  001700        CMP     E.CS1,T.CS1      ;CHECK IF CONTROLLER ERROR RESET
8080  054366  001401                        BEQ     4$               ;YES, CHECK IF DATA LATE RESET
8081  054370  104020                        ERROR   20               ;CS1 INCORRECT AFTER ATTEMPTING
8082                                                                 ;  TO CLEAR DATA LATE
8083  054372  023737  001750  001710  4$:   CMP     E.CS2,T.CS2      ;CHECK IF DATA LATE RESET
8084  054400  001401                        BEQ     TST74            ;YES,GO ON TO NEXT TEST
8085  054402  104021                        ERROR   21               ;CS2 INCORRECT AFTER ATTEMPTING
8086                                                                 ;  TO CLEAR DATA LATE
8087
8088                        ;*****************************************************************
8089                        ;*TEST 74       INTERRUPT DUE TO DATA LATE
8090                        ;*
8091                        ;*      ALLOW RK611 INTERRUPTS.  SET INTERRUPT ENABLE.
8092                        ;*      NOW READ ONE WORD FROM DATA BUFFER AND MAKE SURE THAT
8093                        ;*      DATA LATE CAUSES INTERRUPT.  BEFORE CLEARING ERROR ALLOW
8094                        ;*      RK611 INTERRUPTS AND MAKE SURE IT DOES NOT OCCUR AGAIN.
8095                        ;*      NOW CLEAR CONTROLLER WITH A CONTROLLER CLEAR.
8096                        ;*
8097                        ;*****************************************************************
8098  054404  000004        TST74:  SCOPE
8099  054406  012737  000764  001200        MOV     #500.,$TIMES     ;;DO 500. ITERATIONS
8100  054414  013702  001270               MOV     $BASE,R2         ;LOAD RK611 BASE
8101  054420  012762  100000  000000        MOV     #CCLR,RKCS1(R2)  ;CLEAR RK611
8102  054426  013701  002000               MOV     RKVEC,R1         ;LOAD VECTOR FOR EXPECTED INTERRUPT
8103  054432  012721  054504               MOV     #10$,(R1)+
8104  054436  012711  000340               MOV     #PR7,(R1)
8105  054442  005046                       CLR     -(SP)            ;LOAD STACK TO ALLOW ALL INTERRUPTS
8106  054444  012746  054452               MOV     #64$,-(SP)       ;LOAD NEXT ADDRESS
8107  054450  000002                       RTI                      ;CLEAR PSW
8108
8109  054452                        64$:
8110  054452  012762  000100  000000        MOV     #IE,RKCS1(R2)    ;SET INTERRUPT ENABLE
8111  054460  005762  000024               TST     RKDB(R2)         ;READ DATA BUFFER
8112  054464  000240                       NOP                      ;ALLOW INTERRUPT TO OCCUR
8113  054466  012746  000340               MOV     #PR7,-(SP)       ;LOCK OUT INTERRUPTS
8114  054472  012746  054500               MOV     #1$,-(SP)
```

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8115  054476  000002                          RTI
8116
8117  054500  104033                  1$:     ERROR   33              ;DATA LATE DID NOT CAUSE EXPECTED INTERRUPT
8118  054502  000422                          BR      60$             ;CLEAR UP FOR NEXT TEST
8119
8120  054504  062706  000004          10$:    ADD     #4,SP           ;ADJUST STACK
8121  054510  012777  054542  125262          MOV     #15$,@RKVEC     ;LOAD VECTOR FOR EXPECTED INTERRUPT
8122  054516  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
8123  054520  012746  054526                  MOV     #65$,-(SP)      ;LOAD NEXT ADDRESS
8124  054524  000002                          RTI                     ;CLEAR PSW
8125
8126  054526                          65$:
8127  054526  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
8128  054530  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
8129  054534  012746  054550                  MOV     #60$,-(SP)      ;CLEAN UP FOR NEXT TEST
8130  054540  000002                          RTI
8131
8132  054542  062706  000004          15$:    ADD     #4,SP           ;ADJUST STACK
8133  054546  104034                          ERROR   34              ;UNEXPECTED INTERRUPT DUE TO
8134                                                                  ;  UNCLEARED CONTROLLER ERROR
8135  054550  012762  100000  000000  60$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
8136  054556  013701  002000                  MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
8137  054562  010111                          MOV     R1,(R1)
8138  054564  062721  000002                  ADD     #2,(R1)+
8139  054570  005011                          CLR     (R1)
8140
8141                          ;*****************************************************************
8142                          ;*TEST 75       INTERRUPT CLEARING AND DATA LATE
8143                          ;*
8144                          ;*      CLEAR RK611 CONTROLLER WITH A CONTROLLER CLEAR. CREATE
8145                          ;*      A CONTROLLER ERROR (DATA LATE) BY READING THE DATA BUFFER
8146                          ;*      WHEN EMPTY.  CLEAR RK611 CONTROLLER WITH A CONTROLLER CLEAR.
8147                          ;*      SET INTERRUPT ENABLE AND LOWER PROCESSOR PRIORITY.
8148                          ;*      MAKE SURE AN INTERRUPT DOES NOT OCCUR.
8149                          ;*
8150                          ;*****************************************************************
8151  054572  000004          TST75:  SCOPE
8152  054574  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
8153  054602  013702  001270                  MOV     $BASE,R2        ;LOAD  RK611 BASE
8154  054606  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
8155  054614  005762  000024                  TST     RKDB(R2)        ;CREATE DATA LATE
8156  054620  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR DATA LATE
8157  054626  013701  002000                  MOV     RKVEC,R1        ;LOAD VECTOR FOR UNEXPECTED INTERRUPT
8158  054632  012721  054664                  MOV     #5$,(R1)+
8159  054636  012711  000340                  MOV     #PR7,(R1)
8160  054642  012762  000100  000000          MOV     #IE,RKCS1(R2)   ;SET INTERRUPT ENABLE
8161  054650  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
8162  054652  012746  054660                  MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
8163  054656  000002                          RTI                     ;CLEAR PSW
8164
8165  054660                          64$:
8166  054660  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
8167  054662  000403                          BR      60$             ;CLEAN UP FOR NEXT TEST
8168
8169  054664  062706  000004          5$:     ADD     #4,SP           ;ADJUST STACK
8170  054670  104035                          ERROR   35              ;CONTROLLER CLEAR DID NOT CLEAR
```

```
                                                                ;   PENDING INTERRUPT DUE
                                                                ;   TO CONTROLLER ERROR
054672  013701  002000          60$:    MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
054676  010111                          MOV     R1,(R1)
054700  062721  000002                  ADD     #2,(R1)+
054704  005011                          CLR     (R1)

                                ;;*****************************************************************
                                ;*TEST 76        INTERRUPT ENABLE AND DATA LATE
                                ;*
                                ;*      CLEAR RK611 CONTROLLER WITH A CONTROLLER CLEAR.  ALLOW
                                ;*      RK611 INTERRUPTS.  READ DATA BUFFER TO GENERATE INTERRUPT
                                ;*      PENDING.  MAKE SURE INTERRUPT DOES NOT OCCUR.
                                ;*
                                ;*      NOW SET INTERRUPT ENABLE AND MAKE SURE INTERRUPTS OCCURS.
                                ;*
                                ;*****************************************************************
054706  000004                  TST76:  SCOPE
054710  012737  000764  001200          MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
054716  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
054722  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
054730  013701  002000                  MOV     RKVEC,R1        ;LOAD VECTOR FOR UNEXPECTED INTERRUPT
054734  012721  055016                  MOV     #10$,(R1)+
054740  012711  000340                  MOV     #PR7,(R1)
054744  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
054746  012746  054754                  MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
054752  000002                          RTI                     ;CLEAR PSW

054754                          64$:
054754  005762  000024                  TST     RKDB(R2)        ;READ DATA BUFFER (GENERATE DATA LATE)
054760  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
054762  012777  055026  125010          MOV     #15$,@RKVEC     ;LOAD VECTOR FOR EXPECTED INTERRUPT
054770  012762  000100  000000          MOV     #IE,RKCS1(R2)   ;SET INTERRUPT ENABLE
054776  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
055000  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
055004  012746  055012                  MOV     #1$,-(SP)
055010  000002                          RTI

055012  104037                  1$:     ERROR   37              ;INTERRUPT DID NOT OCCUR WHEN
                                                                ;   INTERRUPT ENABLE SET
055014  000406                          BR      20$             ;CLEAN UP FOR NEXT TEST

055016  062706  000004          10$:    ADD     #4,SP           ;ADJUST STACK
055022  104036                          ERROR   36              ;CONTROLLER ERROR CAUSED INTERRUPT
                                                                ;   WITH INTERRUPT ENABLE RESET

055024  000402                          BR      20$             ;CLEAN UP FOR NEXT TEST

055026  062706  000004          15$:    ADD     #4,SP           ;ADJUST STACK
055032  012762  100000  000000  20$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
055040  013701  002000                  MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
055044  010111                          MOV     R1,(R1)
055046  062721  000002                  ADD     #2,(R1)+
055052  005011                          CLR     (R1)
```

```
                                .SBTTL  END OF PASS ROUTINE

                                ;;*****************************************************************
                                ;*INCREMENT THE PASS NUMBER ($PASS)
                                ;*TYPE "END PASS #XXXXX TOTAL NUMBER OF ERRORS SINCE LAST REPORT YYYYY"
                                ;*WHERE XXXXX AND YYYYY ARE DECIMAL NUMBERS
                                ;*IF THERES A MONITOR GO TO IT
                                ;*IF THERE ISN'T JUMP TO NEWPAS

055054                          $EOP:
055054  000004                          SCOPE
055056  005037  001102                  CLR     $TSTNM          ;;ZERO THE TEST NUMBER
055062  005037  001200                  CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
055066  005237  001222                  INC     $PASS           ;;INCREMENT THE PASS NUMBER
055072  042737  100000  001222          BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
055100  005327                          DEC     (PC)+           ;;LOOP?
055102  000001                  $EOPCT: .WORD   1
055104  003063                          BGT     $DOAGN          ;;YES
055106  012737                          MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
055110  000001                  $ENDCT: .WORD   1
055112  055102                          $EOPCT
055114  104401  055122                  TYPE    ,65$            ;;TYPE ASCIZ STRING
055120  000407                          BR      64$             ;;GET OVER THE ASCIZ
                                ;;65$:  .ASCIZ  <12><15>/END PASS #/
055140                          64$:
055140  013746  001222                  MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
                                                                ;;TYPE PASS NUMBER
055144  104405                          TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
055146  104401  055154                  TYPE    ,67$            ;;TYPE ASCIZ STRING
055152  000421                          BR      66$             ;;GET OVER THE ASCIZ
                                ;;67$:  .ASCIZ  /  TOTAL ERRORS SINCE LAST REPORT /
055216                          66$:
055216  013746  001112                  MOV     $ERTTL,-(SP)    ;;SAVE $ERTTL FOR TYPEOUT
                                                                ;;TOTAL NUMBER OF ERRORS
055222  104405                          TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
055224  104401  001211                  TYPE    $CRLF           ;;TYPE CARRIAGE RETURN, LINE FEED
055230  005037  001112                  CLR     $ERTTL          ;;CLEAR ERROR TOTAL
055234  013700  000042          $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
055240  001405                          BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
055242  000005                          RESET                   ;;CLEAR THE WORLD
055244  004710                  $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
055246  000240                          NOP                     ;;SAVE ROOM
055250  000240                          NOP                     ;;FOR
055252  000240                          NOP                     ;;ACT11
055254                          $DOAGN:
055254  000137                          JMP     @(PC)+          ;;RETURN
055256  003040                  $RTNAD: .WORD   NEWPAS
055260      377     377     000 $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
        055264                          .EVEN

                                .SBTTL  CHECK FOR MEMORY CHECK ENABLE

055264  012737  055336  000004 CHKPAR: MOV     #20$,ERRVEC     ;SET VECTOR ;FOR MEMORY PARTITY CHECK
055272  012737  000340  000006         MOV     #PR7,ERRVEC+2
055300  012703  172100                 MOV     #MEMBAS,R3      ;LOAD REGISTER TO DETERMINE IF
                                                                ;  MEMORY CHECK ENABLE AVAILIZGLE
```

```
8282   055304   012704   000020            16$:    MOV     #16.,R4          ;LOAD COUNT
8283   055310   012723   000001                    MOV     #PAR.EN,(R3)+    ;ENABLE MEMORY CHECK
8284   055314   013737   055354   000114           MOV     MEMERR,MEMVEC    ;LOAD MEMORY CHECK VECTOR
8285   055322   012737   000340   000116           MOV     #PR7,MEMVEC+2
8286   055330   005304                            DEC     R4               ;CHECK IF FINISHED
8287   055332   001366                            BNE     16$              ;NO, SET UP NEXT MEMORY PARITY MODULE
8288   055334   000401                            BR      22$              ;RESTORE TRAP VECTOR
8289
8290   055336   022626            20$:    CMP     (SP)+,(SP)+      ;ADJUST STACK
8291   055340   012737   000006   000004   22$:    MOV     #ERRVEC+2,ERRVEC ;RESTORE TRAP CATCHER
8292   055346   005037   000006                    CLR     ERRVEC+2
8293   055352   000207                            RTS     PC               ;RETURN
8294
8295                              .SBTTL  MEMORY CHECK ENABLE TRAP
8296
8297   055354   012737   055370   001202   MEMERR: MOV     #10$,$ESCAPE     ;LOAD ESCAPE
8298   055362   011637   002024            MOV     (SP),TRAPPC      ;STORE PC
8299   055366   104040                    ERROR   40               ;REPORT MEM PARITY ERROR
8300   055370   005037   001202   10$:    CLR     $ESCAPE          ;CLEAR ESCAPE
8301   055374   032777   001000   123536           BIT     #SW9,@SWR        ;CHECK IF LOOP ON ERROR
8302   055402   001001                            BNE     15$              ;YES, FORCE STACK AND TRY AGAIN
8303   055404   000002                            RTI                      ;NO, RETURN
8304
8305   055406   012706   001100   15$:    MOV     #STACK,SP        ;INITIALIZE STACK
8306   055412   000177   123472            JMP     @$LPERR          ;LOOP ON ERROR
8307
8308                              .SBTTL  SCOPE HANDLER ROUTINE
8309
8310                              ;;**************************************************************
8311                              ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
8312                              ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
8313                              ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
8314                              ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
8315                              ;*SW14=1         LOOP ON TEST
8316                              ;*SW11=1         INHIBIT ITERATIONS
8317                              ;*SW09=1         LOOP ON ERROR
8318                              ;*SW08=1         LOOP ON TEST IN SWR<7:0>
8319                              ;*CALL
8320                              ;*      SCOPE            ;;SCOPE=IOT
8321
8322   055416                   $SCOPE:
8323   055416   104407                    CKSWR                    ;;TEST  FOR CHANGE IN SOFT-SWR
8324   055420   032777   040000   123512   1$:     BIT     #BIT14,@SWR      ;;LOOP ON PRESENT TEST?
8325   055426   001131                    BNE     $OVER            ;;YES IF SW14=1
8326                              ;#####START OF CODE FOR THE XOR TESTER#####
8327   055430   000416           $XTSTR: BR      6$               ;;IF RUNNING ON THE "XOR" TESTER CHANGE
8328                                                             ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
8329   055432   013746   000004            MOV     @#ERRVEC,-(SP)   ;;SAVE THE CONTENTS OF THE ERROR VECTOR
8330   055436   012737   055456   000004   MOV     #5$,@#ERRVEC     ;;SET FOR TIMEOUT
8331   055444   005737   177060            TST     @#177060         ;;TIME OUT ON XOR?
8332   055450   012637   000004            MOV     (SP)+,@#ERRVEC   ;;RESTORE THE ERROR VECTOR
8333   055454   000500                    BR      $SVLAD           ;;GO TO THE NEXT TEST
8334   055456   022626           5$:     CMP     (SP)+,(SP)+      ;;CLEAR THE STACK AFTER A TIME OUT
8335   055460   012637   000004            MOV     (SP)+,@#ERRVEC   ;;RESTORE THE ERROR VECTOR
8336   055464   000440                    BR      7$               ;;LOOP ON THE PRESENT TEST
8337   055466           6$:;#####END OF CODE FOR THE XOR TESTER#####
```

```
8338  055466  032777  000400  123444          BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
8339  055474  001421                          BEQ     2$              ;;BR IF NO
8340  055476  005046                          CLR     -(SP)           ;;CLEAR A TEMP. LOCATION
8341  055500  117716  123434                  MOVB    @SWR,(SP)       ;;PICKUP THE DESIRED TEST NUMBER
8342  055504  001414                          BEQ     8$              ;;BRANCH IF BAD TEST NUMBER IN SWR
8343  055506  022716  000076                  CMP     #76,(SP)        ;;CHECK THE NUMBER IN THE SWR
8344  055512  002411                          BLT     8$              ;;BRANCH IF TEST NUMBER IS OUT OF RANGE
8345  055514  011637  001102                  MOV     (SP),$TSTNM     ;;UPDATE THE TEST NUMBER
8346  055520  005316                          DEC     (SP)            ;;BACKUP BY ONE
8347  055522  006316                          ASL     (SP)            ;;SCALE THE TEST NUMBER AS AN INDEX
8348  055524  062716  055730                  ADD     #$SW08TBL,(SP)  ;;FORM THE ADDRESS OF TEST POINTER
8349  055530  013637  001106                  MOV     @(SP)+,$LPADR   ;;SET LOOP ADDRESS TO DESIRED TEST
8350  055534  000466                          BR      $OVER           ;;GO LOOP ON THE TEST
8351  055536  005726                  8$:     TST     (SP)+           ;;CLEAN THE BAD TEST NUMBER OFF OF THE STACK
8352  055540  105737  001103          2$:     TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
8353  055544  001421                          BEQ     3$              ;;BR IF NO
8354  055546  123737  001115  001103          CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
8355  055554  101015                          BHI     3$              ;;BR IF NO
8356  055556  032777  001000  123354          BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
8357  055564  001404                          BEQ     4$              ;;BR IF NO
8358  055566  013737  001110  001106  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
8359  055574  000446                          BR      $OVER
8360  055576  105037  001103          4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
8361  055602  005037  001200                  CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
8362  055606  000415                          BR      1$              ;;ESCAPE TO THE NEXT TEST
8363  055610  032777  004000  123322  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
8364  055616  001011                          BNE     1$              ;;BR IF YES
8365  055620  005737  001222                  TST     $PASS           ;;IF FIRST PASS OF PROGRAM
8366  055624  001406                          BEQ     1$              ;;      INHIBIT ITERATIONS
8367  055626  005237  001104                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
8368  055632  023737  001200  001104          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
8369  055640  002024                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
8370  055642  012737  000001  001104  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
8371  055650  013737  055726  001200          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
8372  055656  105237  001102          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
8373  055662  113737  001102  001220          MOVB    $TSTNM,$TESTN   ;;SET TEST NUMBER IN APT MAILBOX
8374  055670  011637  001106                  MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
8375  055674  011637  001110                  MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
8376  055700  005037  001202                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
8377  055704  112737  000001  001115          MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
8378  055712  013777  001102  123222  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
8379  055720  013716  001106                  MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
8380  055724  000002                          RTI                     ;;FIXES PS
8381  055726  003720                  $MXCNT: 2000.                   ;;MAX. NUMBER OF ITERATIONS
8382  055730                          $SW08TBL:
8383  055730  003064                          .WORD   TST1+2          ;;STARTING ADDRESS OF TEST 1
8384  055732  003156                          .WORD   TST2+2          ;;STARTING ADDRESS OF TEST 2
8385  055734  003716                          .WORD   TST3+2          ;;STARTING ADDRESS OF TEST 3
8386  055736  004456                          .WORD   TST4+2          ;;STARTING ADDRESS OF TEST 4
8387  055740  005212                          .WORD   TST5+2          ;;STARTING ADDRESS OF TEST 5
8388  055742  005310                          .WORD   TST6+2          ;;STARTING ADDRESS OF TEST 6
8389  055744  006120                          .WORD   TST7+2          ;;STARTING ADDRESS OF TEST 7
8390  055746  006704                          .WORD   TST10+2         ;;STARTING ADDRESS OF TEST 10
8391  055750  007532                          .WORD   TST11+2         ;;STARTING ADDRESS OF TEST 11
8392  055752  010360                          .WORD   TST12+2         ;;STARTING ADDRESS OF TEST 12
8393  055754  011204                          .WORD   TST13+2         ;;STARTING ADDRESS OF TEST 13
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8394  055756  012030                  .WORD   TST14+2         ;;STARTING ADDRESS OF TEST 14
8395  055760  012716                  .WORD   TST15+2         ;;STARTING ADDRESS OF TEST 15
8396  055762  013606                  .WORD   TST16+2         ;;STARTING ADDRESS OF TEST 16
8397  055764  014472                  .WORD   TST17+2         ;;STARTING ADDRESS OF TEST 17
8398  055766  015356                  .WORD   TST20+2         ;;STARTING ADDRESS OF TEST 20
8399  055770  016064                  .WORD   TST21+2         ;;STARTING ADDRESS OF TEST 21
8400  055772  016702                  .WORD   TST22+2         ;;STARTING ADDRESS OF TEST 22
8401  055774  017520                  .WORD   TST23+2         ;;STARTING ADDRESS OF TEST 23
8402  055776  020334                  .WORD   TST24+2         ;;STARTING ADDRESS OF TEST 24
8403  056000  021150                  .WORD   TST25+2         ;;STARTING ADDRESS OF TEST 25
8404  056002  021776                  .WORD   TST26+2         ;;STARTING ADDRESS OF TEST 26
8405  056004  022624                  .WORD   TST27+2         ;;STARTING ADDRESS OF TEST 27
8406  056006  023450                  .WORD   TST30+2         ;;STARTING ADDRESS OF TEST 30
8407  056010  024274                  .WORD   TST31+2         ;;STARTING ADDRESS OF TEST 31
8408  056012  025122                  .WORD   TST32+2         ;;STARTING ADDRESS OF TEST 32
8409  056014  025750                  .WORD   TST33+2         ;;STARTING ADDRESS OF TEST 33
8410  056016  026574                  .WORD   TST34+2         ;;STARTING ADDRESS OF TEST 34
8411  056020  027420                  .WORD   TST35+2         ;;STARTING ADDRESS OF TEST 35
8412  056022  030270                  .WORD   TST36+2         ;;STARTING ADDRESS OF TEST 36
8413  056024  031140                  .WORD   TST37+2         ;;STARTING ADDRESS OF TEST 37
8414  056026  032004                  .WORD   TST40+2         ;;STARTING ADDRESS OF TEST 40
8415  056030  032650                  .WORD   TST41+2         ;;STARTING ADDRESS OF TEST 41
8416  056032  033414                  .WORD   TST42+2         ;;STARTING ADDRESS OF TEST 42
8417  056034  034122                  .WORD   TST43+2         ;;STARTING ADDRESS OF TEST 43
8418  056036  034630                  .WORD   TST44+2         ;;STARTING ADDRESS OF TEST 44
8419  056040  035336                  .WORD   TST45+2         ;;STARTING ADDRESS OF TEST 45
8420  056042  036044                  .WORD   TST46+2         ;;STARTING ADDRESS OF TEST 46
8421  056044  036672                  .WORD   TST47+2         ;;STARTING ADDRESS OF TEST 47
8422  056046  037520                  .WORD   TST50+2         ;;STARTING ADDRESS OF TEST 50
8423  056050  040344                  .WORD   TST51+2         ;;STARTING ADDRESS OF TEST 51
8424  056052  041170                  .WORD   TST52+2         ;;STARTING ADDRESS OF TEST 52
8425  056054  042034                  .WORD   TST53+2         ;;STARTING ADDRESS OF TEST 53
8426  056056  042700                  .WORD   TST54+2         ;;STARTING ADDRESS OF TEST 54
8427  056060  043542                  .WORD   TST55+2         ;;STARTING ADDRESS OF TEST 55
8428  056062  044404                  .WORD   TST56+2         ;;STARTING ADDRESS OF TEST 56
8429  056064  045112                  .WORD   TST57+2         ;;STARTING ADDRESS OF TEST 57
8430  056066  045620                  .WORD   TST60+2         ;;STARTING ADDRESS OF TEST 60
8431  056070  046674                  .WORD   TST61+2         ;;STARTING ADDRESS OF TEST 61
8432  056072  047160                  .WORD   TST62+2         ;;STARTING ADDRESS OF TEST 62
8433  056074  047266                  .WORD   TST63+2         ;;STARTING ADDRESS OF TEST 63
8434  056076  047410                  .WORD   TST64+2         ;;STARTING ADDRESS OF TEST 64
8435  056100  047574                  .WORD   TST65+2         ;;STARTING ADDRESS OF TEST 65
8436  056102  050476                  .WORD   TST66+2         ;;STARTING ADDRESS OF TEST 66
8437  056104  051276                  .WORD   TST67+2         ;;STARTING ADDRESS OF TEST 67
8438  056106  052076                  .WORD   TST70+2         ;;STARTING ADDRESS OF TEST 70
8439  056110  052674                  .WORD   TST71+2         ;;STARTING ADDRESS OF TEST 71
8440  056112  053472                  .WORD   TST72+2         ;;STARTING ADDRESS OF TEST 72
8441  056114  054210                  .WORD   TST73+2         ;;STARTING ADDRESS OF TEST 73
8442  056116  054406                  .WORD   TST74+2         ;;STARTING ADDRESS OF TEST 74
8443  056120  054574                  .WORD   TST75+2         ;;STARTING ADDRESS OF TEST 75
8444  056122  054710                  .WORD   TST76+2         ;;STARTING ADDRESS OF TEST 76
8445                          ;;*****************************************************************
8446
8447                          .SBTTL  LOOP ON INTERNAL ERROR
8448
8449  056124  032777  001000  123006  SCOP1$: BIT     #SW9,@SWR       ;CHECK IF LOOP IN ERROR
```

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 8450  056132  001405                        BEQ     5$                      ;NO, CONTINUE TEST
 8451  056134  105737  001103                TSTB    $ERFLG                  ;CHECK IF ERROR OCCURRED
 8452  056140  001402                        BEQ     5$                      ;NO, CONTINUE
 8453  056142  013716  001110                MOV     $LPERR,(SP)             ;LOAD ERROR RETURN
 8454  056146  000002                5$:     RTI                             ;RETURN
 8455                                  .SBTTL  APT COMMUNICATIONS ROUTINE
 8456
 8457                                  ;;**************************************************************************
 8458  056150  112737  000001  056414 $ATY1:  MOVB    #1,$FFLG                ;;TO REPORT FATAL ERROR
 8459  056156  112737  000001  056412 $ATY3:  MOVB    #1,$MFLG                ;;TO TYPE A MESSAGE
 8460  056164  000403                        BR      $ATYC
 8461  056166  112737  000001  056414 $ATY4:  MOVB    #1,$FFLG                ;;TO ONLY REPORT FATAL ERROR
 8462  056174                        $ATYC:
 8463  056174  010046                        MOV     R0,-(SP)                ;;PUSH R0 ON STACK
 8464  056176  010146                        MOV     R1,-(SP)                ;;PUSH R1 ON STACK
 8465  056200  105737  056412                TSTB    $MFLG                   ;;SHOULD TYPE A MESSAGE?
 8466  056204  001450                        BEQ     5$                      ;;IF NOT:  BR
 8467  056206  122737  000001  001234        CMPB    #APTENV,$ENV            ;;OPERATING UNDER APT?
 8468  056214  001031                        BNE     3$                      ;;IF NOT:  BR
 8469  056216  132737  000100  001235        BITB    #APTSPOOL,$ENVM         ;;SHOULD SPOOL MESSAGES?
 8470  056224  001425                        BEQ     3$                      ;;IF NOT:  BR
 8471  056226  017600  000004                MOV     @4(SP),R0               ;;GET MESSAGE ADDR.
 8472  056232  062766  000002  000004        ADD     #2,4(SP)                        ;;BUMP RETURN ADDR.
 8473  056240  005737  001214        1$:     TST     $MSGTYPE                ;;SEE IF DONE W/ LAST XMISSION?
 8474  056244  001375                        BNE     1$                      ;;IF NOT:  WAIT
 8475  056246  010037  001230                MOV     R0,$MSGAD               ;;PUT ADDR IN MAILBOX
 8476  056252  105720                2$:     TSTB    (R0)+                   ;;FIND END OF MESSAGE
 8477  056254  001376                        BNE     2$
 8478  056256  163700  001230                SUB     $MSGAD,R0               ;;SUB START OF MESSAGE
 8479  056262  006200                        ASR     R0                      ;;GET MESSAGE LNGTH IN WORDS
 8480  056264  010037  001232                MOV     R0,$MSGLGT              ;;PUT LENGTH IN MAILBOX
 8481  056270  012737  000004  001214        MOV     #4,$MSGTYPE             ;;TELL APT TO TAKE MSG.
 8482  056276  000413                        BR      5$
 8483  056300  017637  000004  056324 3$:     MOV     @4(SP),4$               ;;PUT MSG ADDR IN JSR LINKAGE
 8484  056306  062766  000002  000004        ADD     #2,4(SP)                        ;;BUMP RETURN ADDRESS
 8485  056314  013746  177776                MOV     177776,-(SP)            ;;PUSH 177776 ON STACK
 8486  056320  004737  057100                JSR     PC,$TYPE                ;;CALL TYPE MACRO
 8487  056324  000000                4$:     .WORD   0
 8488  056326                        5$:
 8489  056326  105737  056414        10$:    TSTB    $FFLG                   ;;SHOULD REPORT FATAL ERROR?
 8490  056332  001416                        BEQ     12$                     ;;IF NOT:  BR
 8491  056334  005737  001234                TST     $ENV                    ;;RUNNING UNDER APT?
 8492  056340  001413                        BEQ     12$                     ;;IF NOT:  BR
 8493  056342  005737  001214        11$:    TST     $MSGTYPE                ;;FINISHED LAST MESSAGE?
 8494  056346  001375                        BNE     11$                     ;;IF NOT:  WAIT
 8495  056350  017637  000004  001216        MOV     @4(SP),$FATAL           ;;GET ERROR #
 8496  056356  062766  000002  000004        ADD     #2,4(SP)                        ;;BUMP RETURN ADDR.
 8497  056364  005237  001214                INC     $MSGTYPE                ;;TELL APT TO TAKE ERROR
 8498  056370  105037  056414        12$:    CLRB    $FFLG                   ;;CLEAR FATAL FLAG
 8499  056374  105037  056413                CLRB    $LFLG                   ;;CLEAR LOG FLAG
 8500  056400  105037  056412                CLRB    $MFLG                   ;;CLEAR MESSAGE FLAG
 8501  056404  012601                        MOV     (SP)+,R1                ;;POP STACK INTO R1
 8502  056406  012600                        MOV     (SP)+,R0                ;;POP STACK INTO R0
 8503  056410  000207                        RTS     PC                      ;;RETURN
 8504  056412     000        $MFLG:  .BYTE   0                               ;;MESSG. FLAG
 8505  056413     000        $LFLG:  .BYTE   0                               ;;LOG FLAG
```

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8506  056414  000                  $FFLG:  .BYTE   0               ;;FATAL FLAG
8507          056416                       .EVEN
8508          000200               APTSIZE=200
8509          000001               APTENV=001
8510          000100               APTSPOOL=100
8511          000040               APTCSUP=040
8512                               .SBTTL  ERROR HANDLER ROUTINE
8513
8514                               ;;**************************************************************
8515                               ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
8516                               ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
8517                               ;*AND GO TO TYPERR ON ERROR
8518                               ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
8519                               ;*SW15=1         HALT ON ERROR
8520                               ;*SW13=1         INHIBIT ERROR TYPEOUTS
8521                               ;*SW10=1         BELL ON ERROR
8522                               ;*SW09=1         LOOP ON ERROR
8523                               ;*CALL
8524                               ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER
8525
8526  056416                       $ERROR:
8527  056416  104407                       CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
8528  056420  105237  001103       7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
8529  056424  001775                       BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
8530  056426  013777  001102  122506       MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
8531  056434  032777  002000  122476       BIT     #BIT10,@SWR     ;;BELL ON ERROR?
8532  056442  001402                       BEQ     1$              ;;NO - SKIP
8533  056444  104401  001204               TYPE    ,$BELL          ;;RING BELL
8534  056450  005237  001112       1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
8535  056454  011637  001116               MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
8536  056460  162737  000002  001116       SUB     #2,$ERRPC
8537  056466  117737  122424  001114       MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
8538  056474  032777  020000  122436       BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
8539  056502  001004                       BNE     20$             ;;SKIP TYPEOUTS
8540  056504  004737  056616               JSR     PC,TYPERR       ;;GO TO USER ERROR ROUTINE
8541  056510  104401  001211               TYPE    ,$CRLF
8542  056514                       20$:
8543  056514  122737  000001  001234       CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
8544  056522  001007                       BNE     2$              ;;NO,SKIP APT ERROR REPORT
8545  056524  113737  001114  056536       MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
8546  056532  004737  056166               JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
8547  056536  000                  21$:    .BYTE   0
8548  056537  000                          .BYTE   0
8549  056540  000777              22$:    BR      22$             ;;APT ERROR LOOP
8550  056542  005777  122372       2$:     TST     @SWR            ;;HALT ON ERROR
8551  056546  100002                       BPL     3$              ;;SKIP IF CONTINUE
8552  056550  000000                       HALT                    ;;HALT ON ERROR!
8553  056552  104407                       CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
8554  056554  032777  001000  122356  3$:  BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
8555  056562  001402                       BEQ     4$              ;;BR IF NO
8556  056564  013716  001110               MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
8557  056570  005737  001202       4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
8558  056574  001402                       BEQ     5$              ;;BR IF NONE
8559  056576  013716  001202               MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
8560  056602                       5$:
8561  056602  022737  055244  000042       CMP     #$ENDAD,@#42    ;;ACT-11 AUTO-ACCEPT?
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8562  056610  001001                        BNE     6$              ;;BRANCH IF NO
8563  056612  000000                        HALT                    ;;YES
8564  056614                          6$:
8565  056614  000002                        RTI                     ;;RETURN
8566
8567                                  ;;*****************************************************************
8568                                  .SBTTL  TYPE ERROR ROUTINE
8569                                  ;*ENTRY-JSR PC,TYPERR
8570                                  ;*RETURN RTS PC
8571                                  ;*
8572                                  ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
8573                                  ;*ERROR IS TO BE REPORTED. IT THEN USES THE "ERROR TABLE" ($ERRTB)
8574                                  ;*ENTRY TO DEFINE WHAT INFORMATION IS TO BE REPORTED CONCERNING
8575                                  ;*THE ERROR.
8576                                  ;;*****************************************************************
8577  056616  104413                  TYPERR: SAVREG
8578  056620  113700  001114                  MOVB    $ITEMB,R0       ;ENTER ERROR NUMBER
8579  056624  042700  177400                  BIC     #177400,R0      ;CLEAR UNUSED BITS
8580  056630  005300                          DEC     R0              ;FORM INDEX FOR ERROR TABLE
8581  056632  006300                          ASL     R0
8582  056634  006300                          ASL     R0
8583  056636  006300                          ASL     R0
8584  056640  062700  001300          1$:     ADD     #$ERRTB,R0      ;FORM ADDRESS OF ERROR ENTRY
8585  056644  012037  056660                  MOV     (R0)+,2$        ;GET EM POINTER
8586  056650  001404                          BEQ     3$              ;BRANCH IF THERE ISN'T ONE
8587  056652  104401  001211                  TYPE    ,$CRLF          ;TYPE CARRIAGE RETURN LINE FEED
8588  056656  104401                          TYPE                    ;TYPE ERROR MESSAGE (EM)
8589  056660  000000                  2$:     .WORD   0               ;EM POINTER GOES HERE
8590  056662  012037  056676          3$:     MOV     (R0)+,4$        ;GET DH POINTER
8591  056666  001404                          BEQ     5$              ;BRANCH IF THERE ISN'T ONE
8592  056670  104401  001211                  TYPE    ,$CRLF          ;TYPE CR-LF
8593  056674  104401                          TYPE                    ;TYPE DATA HEADER
8594  056676  000000                  4$:     .WORD   0               ;DH POINTER GOES HERE
8595  056700  012001                  5$:     MOV     (R0)+,R1        ;GET DT POINTER
8596  056702  001445                          BEQ     20$             ;BRANCH IF THERE ARE NONE
8597  056704  005004                          CLR     R4              ;RESET INDENT SWITCH
8598  056706  012000                          MOV     (R0)+,R0        ;GET DF POINTER
8599  056710  012002                          MOV     (R0)+,R2        ;STORE NUMBER OF DH'S
8600  056712  104401  001211                  TYPE    ,$CRLF          ;TYPE <CR><LF>'
8601  056716  112003                  10$:    MOVB    (R0)+,R3        ;GET & STORE NUMBER OF DATA WORDS
8602  056720  105720                          TSTB    (R0)+           ;BUMP PAST FORMAT WORD
8603  056722  005703                          TST     R3              ;TEST IF ANY DATA FOR THIS HEADER
8604  056724  001416                          BEQ     14$             ;NO - SKIP DATA PRINT
8605  056726  005704                          TST     R4              ;CHECK IF INDENT WORDS
8606  056730  001004                          BNE     12$             ;YES, GO INDENT
8607  056732  013146                  11$:    MOV     @(R1)+,-(SP)    ;PUT FIRST DATA WORD ON STACK
8608  056734  104402                          TYPOC                   ;TYPE IT
8609  056736  005303                          DEC     R3              ;MORE DATA WORDS
8610  056740  001403                          BEQ     13$             ;NO-BRANCH
8611  056742  104401  062161          12$:    TYPE    ,SPACE2         ;TYPE SEPARATORS
8612  056746  000771                          BR      11$             ;LOOP
8613  056750  104401  001211          13$:    TYPE    ,$CRLF          ;TYPE <CR><LF>
8614  056754  005710                          TST     (R0)            ;CHECK IF NEXT HEADER AVAILIBLE
8615  056756  001401                          BEQ     14$             ;NO, DO NOT CHANGE INDENT
8616  056760  005104                          COM     R4              ;CHANGE INDENT
8617  056762  005302                  14$:    DEC     R2              ;MORE DH'S?
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 8618  056764  003414                    BLE     20$             ;NO-BRANCH
 8619  056766  012037  057006    15$:    MOV     (R0)+,18$       ;GET NEXT DH POINTER
 8620  056772  001751                    BEQ     10$             ;IF NO HEADER GET DATA
 8621  056774  005704                    TST     R4              ;INDENT?
 8622  056776  001402                    BEQ     17$             ;NO-BRANCH
 8623  057000  104401  062161            TYPE    ,SPACE2         ;INDENT
 8624  057004  104401            17$:    TYPE                    ;TYPE DH
 8625  057006  000000            18$:    .WORD   0               ;DH POINTER GOES HERE
 8626  057010  104401  001211            TYPE    ,$CRLF
 8627  057014  000740                    BR      10$             ;LOOP
 8628  057016  104414            20$:    RESREG
 8629  057020  005237  002006            INC     ERRCNT          ;INCREMENT ERROR COUNT
 8630  057024  032777  010000  122106    BIT     #SW12,@SWR      ;CHECK IF ABORT AFTER 20 ERRORS
 8631  057032  001421                    BEQ     25$             ;NO, TYPE OUT ERROR
 8632  057034  022737  000024  002006    CMP     #20.,ERRCNT     ;CHECK IF ERROR THRESHOLD EXCEEDED
 8633  057042  103015                    BHIS    25$             ;NO, PRINT ERROR
 8634  057044  104401  062164            TYPE    ,ABORT          ;TYPE "PROGRAM HAS BEEN ABORTED BECAUSE
 8635                                                            ;  ERROR THRESHOLD EXCEEDED"
 8636  057050  005737  000042            TST     42              ;CHECK IF IN CHAIN MODE
 8637  057054  001407                    BEQ     30$             ;NO, HALT
 8638  057056  012737  000001  055102    MOV     #1,$EOPCT       ;FORCE END OF PASS COUNT TO ONE FOR ABORT
 8639  057064  012706  001100            MOV     #STACK,SP       ;INITIALIZE STACK
 8640  057070  000137  055054            JMP     $EOP            ;BRING IN NEXT PROGRAM IN CHAIN
 8641  057074  000000            30$:    HALT
 8642  057076  000207            25$:    RTS     PC
 8643                            .SBTTL  TYPE ROUTINE
 8644
 8645                            ;;**************************************************************
 8646                            ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
 8647                            ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
 8648                            ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
 8649                            ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
 8650                            ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
 8651                            ;*
 8652                            ;*CALL:
 8653                            ;*1) USING A TRAP INSTRUCTION
 8654                            ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
 8655                            ;*OR
 8656                            ;*      TYPE
 8657                            ;*      MESADR
 8658                            ;*
 8659
 8660  057100  105737  001157    $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
 8661  057104  100002                    BPL     1$              ;;BR IF YES
 8662  057106  000000                    HALT                    ;;HALT HERE IF NO TERMINAL
 8663  057110  000430                    BR      3$              ;;LEAVE
 8664  057112  010046            1$:     MOV     R0,-(SP)        ;;SAVE R0
 8665  057114  017600  000002            MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
 8666  057120  122737  000001  001234    CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
 8667  057126  001011                    BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
 8668  057130  132737  000100  001235    BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
 8669  057136  001405                    BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
 8670  057140  010037  057150            MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
 8671  057144  004737  056156            JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
 8672  057150  000000            61$:    .WORD   0               ;;MESSAGE ADDRESS
 8673  057152  132737  000040  001235    62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
```

```
8674  057160  001003                        BNE     60$             ;;YES,SKIP TYPE OUT
8675  057162  112046                2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
8676  057164  001005                        BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
8677  057166  005726                        TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
8678  057170  012600                60$:    MOV     (SP)+,R0        ;;RESTORE R0
8679  057172  062716  000002        3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
8680  057176  000002                        RTI                     ;;RETURN
8681  057200  122716  000011        4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
8682  057204  001430                        BEQ     8$
8683  057206  122716  000200                CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
8684  057212  001006                        BNE     5$
8685  057214  005726                        TST     (SP)+           ;;POP  <CR><LF> EQUIV
8686  057216  104401                        TYPE                    ;;TYPE A CR AND LF
8687  057220  001211                        $CRLF
8688  057222  105037  057356                CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
8689  057226  000755                        BR      2$              ;;GET NEXT CHARACTER
8690  057230  004737  057312        5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
8691  057234  123726  001156        6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
8692  057240  001350                        BNE     2$              ;;IF NO GO GET NEXT CHAR.
8693  057242  013746  001154                MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
8694                                                                ;;AND THE NULL CHAR.
8695  057246  105366  000001        7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
8696  057252  002770                        BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
8697  057254  004737  057312                JSR     PC,$TYPEC       ;;GO TYPE A NULL
8698  057260  105337  057356                DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
8699  057264  000770                        BR      7$              ;;LOOP
8700
8701                                ;HORIZONTAL TAB PROCESSOR
8702
8703  057266  112716  000040        8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
8704  057272  004737  057312        9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
8705  057276  132737  000007  057356        BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
8706  057304  001372                        BNE     9$              ;;TAB STOP
8707  057306  005726                        TST     (SP)+           ;;POP SPACE OFF STACK
8708  057310  000724                        BR      2$              ;;GET NEXT CHARACTER
8709  057312  105777  121632        $TYPEC: TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
8710  057316  100375                        BPL     $TYPEC
8711  057320  116677  000002  121624        MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
8712  057326  122766  000015  000002        CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
8713  057334  001003                        BNE     1$              ;;BRANCH IF NO
8714  057336  105037  057356                CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
8715  057342  000406                        BR      $TYPEX          ;;EXIT
8716  057344  122766  000012  000002  1$:   CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
8717  057352  001402                        BEQ     $TYPEX          ;;BRANCH IF YES
8718  057354  105227                        INCB    (PC)+           ;;COUNT THE CHARACTER
8719  057356  000000        $CHARCNT:.WORD  0                       ;;CHARACTER COUNT STORAGE
8720  057360  000207        $TYPEX: RTS     PC
8721
8722                                .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
8723
8724                                ;;**************************************************************
8725                                ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
8726                                ;*OCTAL (ASCII) NUMBER AND TYPE IT.
8727                                ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
8728                                ;*CALL:
8729                                ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
```

```
8730                                    ;*      TYPOS                   ;;CALL FOR TYPEOUT
8731                                    ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
8732                                    ;*      .BYTE   M               ;;M=1 OR 0
8733                                    ;*                                      ;;1=TYPE LEADING ZEROS
8734                                    ;*                                      ;;0=SUPPRESS LEADING ZEROS
8735                                    ;*
8736                                    ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
8737                                    ;*$TYPOS OR $TYPOC
8738                                    ;*CALL:
8739                                    ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
8740                                    ;*      TYPON                   ;;CALL FOR TYPEOUT
8741                                    ;*
8742                                    ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
8743                                    ;*CALL:
8744                                    ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
8745                                    ;*      TYPOC                   ;;CALL FOR TYPEOUT
8746
8747  057362  017646  000000           $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
8748  057366  116637  000001  057605           MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
8749  057374  112637  057607                   MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
8750  057400  062716  000002                   ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
8751  057404  000406                           BR      $TYPON
8752  057406  112737  000001  057605   $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
8753  057414  112737  000006  057607           MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
8754  057422  112737  000005  057604   $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
8755  057430  010346                           MOV     R3,-(SP)        ;;SAVE R3
8756  057432  010446                           MOV     R4,-(SP)        ;;SAVE R4
8757  057434  010546                           MOV     R5,-(SP)        ;;SAVE R5
8758  057436  113704  057607                   MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
8759  057442  005404                           NEG     R4
8760  057444  062704  000006                   ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
8761  057450  110437  057606                   MOVB    R4,$OMODE       ;;SAVE IT FOR USE
8762  057454  113704  057605                   MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
8763  057460  016605  000012                   MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
8764  057464  005003                           CLR     R3              ;;CLEAR THE OUTPUT WORD
8765  057466  006105                   1$:     ROL     R5              ;;ROTATE MSB INTO "C"
8766  057470  000404                           BR      3$              ;;GO DO MSB
8767  057472  006105                   2$:     ROL     R5              ;;FORM THIS DIGIT
8768  057474  006105                           ROL     R5
8769  057476  006105                           ROL     R5
8770  057500  010503                           MOV     R5,R3
8771  057502  006103                   3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
8772  057504  105337  057606                   DECB    $OMODE          ;;TYPE THIS DIGIT?
8773  057510  100016                           BPL     7$              ;;BR IF NO
8774  057512  042703  177770                   BIC     #177770,R3      ;;GET RID OF JUNK
8775  057516  001002                           BNE     4$              ;;TEST FOR 0
8776  057520  005704                           TST     R4              ;;SUPPRESS THIS 0?
8777  057522  001403                           BEQ     5$              ;;BR IF YES
8778  057524  005204                   4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
8779  057526  052703  000060                   BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
8780  057532  052703  000040           5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
8781  057536  110337  057602                   MOVB    R3,8$           ;;SAVE FOR TYPING
8782  057542  104401  057602                   TYPE    ,8$             ;;GO TYPE THIS DIGIT
8783  057546  105337  057604   7$:     DECB    $OCNT           ;;COUNT BY 1
8784  057552  003347                           BGT     2$              ;;BR IF MORE TO DO
8785  057554  002402                           BLT     6$              ;;BR IF DONE
```

```
8786  057556  005204                          INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
8787  057560  000744                          BR      2$              ;;GO DO THE LAST DIGIT
8788  057562  012605                  6$:     MOV     (SP)+,R5        ;;RESTORE R5
8789  057564  012604                          MOV     (SP)+,R4        ;;RESTORE R4
8790  057566  012603                          MOV     (SP)+,R3        ;;RESTORE R3
8791  057570  016666  000002  000004          MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
8792  057576  012616                          MOV     (SP)+,(SP)
8793  057600  000002                          RTI                     ;;RETURN
8794  057602     000                  8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
8795  057603     000                          .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
8796  057604     000                  $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
8797  057605     000                  $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
8798  057606  000000                  $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
8799                                  .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
8800
8801                                  ;;*****************************************************************
8802                                  ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
8803                                  ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
8804                                  ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
8805                                  ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
8806                                  ;*REPLACED WITH SPACES.
8807                                  ;*CALL:
8808                                  ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
8809                                  ;*      TYPDS                   ;;GO TO THE ROUTINE
8810
8811  057610                          $TYPDS:
8812  057610  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
8813  057612  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
8814  057614  010246                          MOV     R2,-(SP)        ;;PUSH R2 ON STACK
8815  057616  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
8816  057620  010546                          MOV     R5,-(SP)        ;;PUSH R5 ON STACK
8817  057622  012746  020200                  MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
8818  057626  016605  000020                  MOV     20(SP),R5       ;;GET THE INPUT NUMBER
8819  057632  100004                          BPL     1$              ;;BR IF INPUT IS POS.
8820  057634  005405                          NEG     R5              ;;MAKE THE BINARY NUMBER POS.
8821  057636  112766  000055  000001          MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
8822  057644  005000                  1$:     CLR     R0              ;;ZERO THE CONSTANTS INDEX
8823  057646  012703  060024                  MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
8824  057652  112723  000040                  MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
8825  057656  005002                  2$:     CLR     R2              ;;CLEAR THE BCD NUMBER
8826  057660  016001  060014                  MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
8827  057664  160105                  3$:     SUB     R1,R5           ;;FORM THIS BCD DIGIT
8828  057666  002402                          BLT     4$              ;;BR IF DONE
8829  057670  005202                          INC     R2              ;;INCREASE THE BCD DIGIT BY 1
8830  057672  000774                          BR      3$
8831  057674  060105                  4$:     ADD     R1,R5           ;;ADD BACK THE CONSTANT
8832  057676  005702                          TST     R2              ;;CHECK IF BCD DIGIT=0
8833  057700  001002                          BNE     5$              ;;FALL THROUGH IF 0
8834  057702  105716                          TSTB    (SP)            ;;STILL DOING LEADING 0'S?
8835  057704  100407                          BMI     7$              ;;BR IF YES
8836  057706  106316                  5$:     ASLB    (SP)            ;;MSD?
8837  057710  103003                          BCC     6$              ;;BR IF NO
8838  057712  116663  000001  177777          MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
8839  057720  052702  000060          6$:     BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
8840  057724  052702  000040          7$:     BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
8841  057730  110223                          MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
```

```
8842  057732  005720                        TST     (R0)+           ;;JUST INCREMENTING
8843  057734  020027  000010                CMP     R0,#10          ;;CHECK THE TABLE INDEX
8844  057740  002746                        BLT     2$              ;;GO DO THE NEXT DIGIT
8845  057742  003002                        BGT     8$              ;;GO TO EXIT
8846  057744  010502                        MOV     R5,R2           ;;GET THE LSD
8847  057746  000764                        BR      6$              ;;GO CHANGE TO ASCII
8848  057750  105726                8$:     TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
8849  057752  100003                        BPL     9$              ;;BR IF NO
8850  057754  116663  177777  177776        MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
8851  057762  105013                9$:     CLRB    (R3)            ;;SET THE TERMINATOR
8852  057764  012605                        MOV     (SP)+,R5        ;;POP STACK INTO R5
8853  057766  012603                        MOV     (SP)+,R3        ;;POP STACK INTO R3
8854  057770  012602                        MOV     (SP)+,R2        ;;POP STACK INTO R2
8855  057772  012601                        MOV     (SP)+,R1        ;;POP STACK INTO R1
8856  057774  012600                        MOV     (SP)+,R0        ;;POP STACK INTO R0
8857  057776  104401  060024                TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
8858  060002  016666  000002  000004        MOV     2(SP),4(SP)     ;;ADJUST THE STACK
8859  060010  012616                        MOV     (SP)+,(SP)
8860  060012  000002                        RTI                     ;;RETURN TO USER
8861  060014  023420                $DTBL:  10000.
8862  060016  001750                        1000.
8863  060020  000144                        100.
8864  060022  000012                        10.
8865  060024  000004                $DBLK:  .BLKW   4
8866                                .SBTTL  TTY INPUT ROUTINE
8867
8868                                ;;******************************************************************
8869                                .ENABL  LSB
8870
8871                                ;;******************************************************************
8872                                ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
8873                                ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
8874                                ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
8875                                ;*WHEN OPERATING IN TTY FLAG MODE.
8876  060034  022737  000176  001140 $CKSWR: CMP     #$WREG,SWR      ;;IS THE SOFT-SWR SELECTED?
8877  060042  001074                        BNE     15$             ;;BRANCH IF NO
8878  060044  105777  121074                TSTB    @$TKS           ;;CHAR THERE?
8879  060050  100071                        BPL     15$             ;;IF NO, DON'T WAIT AROUND
8880  060052  117746  121070                MOVB    @$TKB,-(SP)     ;;SAVE THE CHAR
8881  060056  042716  177600                BIC     #^C177,(SP)     ;;STRIP-OFF THE ASCII
8882  060062  022726  000007                CMP     #7,(SP)+        ;;IS IT A CONTROL G?
8883  060066  001062                        BNE     15$             ;;NO, RETURN TO USER
8884  060070  123727  001134  000001        CMPB    $AUTOB,#1       ;;ARE WE RUNNING IN AUTO-MODE?
8885  060076  001456                        BEQ     15$             ;;BRANCH IF YES
8886
8887  060100  104401  060707                TYPE    ,$CNTLG         ;;ECHO THE CONTROL-G (^G)
8888  060104  104401  060714        $GTSWR: TYPE    ,$MSWR          ;;TYPE CURRENT CONTENTS
8889  060110  013746  000176                MOV     $WREG,-(SP)     ;;SAVE $WREG FOR TYPEOUT
8890  060114  104402                        TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
8891  060116  104401  060725                TYPE    ,$MNEW          ;;PROMPT FOR NEW SWR
8892  060122  005046                19$:    CLR     -(SP)           ;;CLEAR COUNTER
8893  060124  005046                        CLR     -(SP)           ;;THE NEW SWR.
8894  060126  105777  121012        7$:     TSTB    @$TKS           ;;CHAR THERE?
8895  060132  100375                        BPL     7$              ;;IF NOT TRY AGAIN
8896
8897  060134  117746  121006                MOVB    @$TKB,-(SP)     ;;PICK UP CHAR
```

```
8898   060140  042716  177600                  BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
8899
8900
8901
8902   060144  021627  000025          9$:     CMP     (SP),#25        ;;IS IT A CONTROL-U?
8903   060150  001005                          BNE     10$             ;;BRANCH IF NOT
8904   060152  104401  060702                  TYPE    ,$CNTLU         ;;YES, ECHO CONTROL-U (^U)
8905   060156  062706  000006          20$:    ADD     #6,SP           ;;IGNORE PREVIOUS INPUT
8906   060162  000757                          BR      19$             ;;LET'S TRY IT AGAIN
8907
8908
8909   060164  021627  000015          10$:    CMP     (SP),#15        ;;IS IT A <CR>?
8910   060170  001022                          BNE     16$             ;;BRANCH IF NO
8911   060172  005766  000004                  TST     4(SP)           ;;YES, IS IT THE FIRST CHAR?
8912   060176  001403                          BEQ     11$             ;;BRANCH IF YES
8913   060200  016677  000002  120732          MOV     2(SP),@SWR      ;;SAVE NEW SWR
8914   060206  062706  000006          11$:    ADD     #6,SP           ;;CLEAR UP STACK
8915   060212  104401  001211          14$:    TYPE    ,$CRLF          ;;ECHO <CR> AND <LF>
8916   060216  123727  001135  000001          CMPB    $INTAG,#1       ;;RE-ENABLE TTY KBD INTERRUPTS?
8917   060224  001003                          BNE     15$             ;;BRANCH IF NOT
8918   060226  012777  000100  120710          MOV     #100,@$TKS      ;;RE-ENABLE TTY KBD INTERRUPTS
8919   060234  000002          15$:    RTI                             ;;RETURN
8920   060236  004737  057312          16$:    JSR     PC,$TYPEC       ;;ECHO CHAR
8921   060242  021627  000060                  CMP     (SP),#60        ;;CHAR < 0?
8922   060246  002420                          BLT     18$             ;;BRANCH IF YES
8923   060250  021627  000067                  CMP     (SP),#67        ;;CHAR > 7?
8924   060254  003015                          BGT     18$             ;;BRANCH IF YES
8925   060256  042726  000060                  BIC     #60,(SP)+       ;;STRIP-OFF ASCII
8926   060262  005766  000002                  TST     2(SP)           ;;IS THIS THE FIRST CHAR
8927   060266  001403                          BEQ     17$             ;;BRANCH IF YES
8928   060270  006316                          ASL     (SP)            ;;NO, SHIFT PRESENT
8929   060272  006316                          ASL     (SP)            ;;   CHAR OVER TO MAKE
8930   060274  006316                          ASL     (SP)            ;;   ROOM FOR NEW ONE.
8931   060276  005266  000002          17$:    INC     2(SP)           ;;KEEP COUNT OF CHAR
8932   060302  056616  177776                  BIS     -2(SP),(SP)     ;;SET IN NEW CHAR
8933   060306  000707                          BR      7$              ;;GET THE NEXT ONE
8934   060310  104401  001210          18$:    TYPE    ,$QUES          ;;TYPE ?<CR><LF>
8935   060314  000720                          BR      20$             ;;SIMULATE CONTROL-U
8936                                  .DSABL  LSB
8937
8938
8939                                  ;;*****************************************************************
8940                                  ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
8941                                  ;*CALL:
8942                                  ;*      RDCHR                   ;;INPUT A SINGLE CHARACTER FROM THE TTY
8943                                  ;*      RETURN HERE             ;;CHARACTER IS ON THE STACK
8944                                  ;*                              ;;WITH PARITY BIT STRIPPED OFF
8945                                  ;
8946
8947   060316  011646                 $RDCHR:  MOV     (SP),-(SP)      ;;PUSH DOWN THE PC
8948   060320  016666  000004  000002          MOV     4(SP),2(SP)     ;;SAVE THE PS
8949   060326  105777  120612          1$:     TSTB    @$TKS           ;;WAIT FOR
8950   060332  100375                          BPL     1$              ;;A CHARACTER
8951   060334  117766  120606  000004          MOVB    @$TKB,4(SP)     ;;READ THE TTY
8952   060342  042766  177600  000004          BIC     #^C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
8953   060350  026627  000004  000023          CMP     4(SP),#23       ;;IS IT A CONTROL-S?
```

```
 8954  060356  001013                        BNE     3$                      ;;BRANCH IF NO
 8955  060360  105777  120560          2$:   TSTB    @$TKS                   ;;WAIT FOR A CHARACTER
 8956  060364  100375                        BPL     2$                      ;;LOOP UNTIL ITS THERE
 8957  060366  117746  120554                MOVB    @$TKB,-(SP)             ;;GET CHARACTER
 8958  060372  042716  177600                BIC     #^C177,(SP)             ;;MAKE IT 7-BIT ASCII
 8959  060376  022627  000021                CMP     (SP)+,#21               ;;IS IT A CONTROL-Q?
 8960  060402  001366                        BNE     2$                      ;;IF NOT DISCARD IT
 8961  060404  000750                        BR      1$                      ;;YES, RESUME
 8962  060406  026627  000004  000140  3$:   CMP     4(SP),#140              ;;IS IT UPPER CASE?
 8963  060414  002407                        BLT     4$                      ;;BRANCH IF YES
 8964  060416  026627  000004  000175        CMP     4(SP),#175              ;;IS IT A SPECIAL CHAR?
 8965  060424  003003                        BGT     4$                      ;;BRANCH IF YES
 8966  060426  042766  000040  000004        BIC     #40,4(SP)               ;;MAKE IT UPPER CASE
 8967  060434  000002                  4$:   RTI                             ;;GO BACK TO USER
 8968                                  ;;*****************************************************************
 8969                                  ;;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
 8970                                  ;;*CALL:
 8971                                  ;;*     RDLIN                           ;;INPUT A STRING FROM THE TTY
 8972                                  ;;*     RETURN HERE                     ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
 8973                                  ;;*                                     ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
 8974
 8975  060436  010346                  $RDLIN: MOV     R3,-(SP)                ;;SAVE R3
 8976  060440  005046                        CLR     -(SP)                   ;;CLEAR THE RUBOUT KEY
 8977  060442  012703  060672          1$:   MOV     #$TTYIN,R3              ;;GET ADDRESS
 8978  060446  022703  060702          2$:   CMP     #$TTYIN+8.,R3           ;;BUFFER FULL?
 8979  060452  101456                        BLOS    4$                      ;;BR IF YES
 8980  060454  104410                        RDCHR                           ;;GO READ ONE CHARACTER FROM THE TTY
 8981  060456  112613                        MOVB    (SP)+,(R3)              ;;GET CHARACTER
 8982  060460  122713  000177          10$:  CMPB    #177,(R3)               ;;IS IT A RUBOUT
 8983  060464  001022                        BNE     5$                      ;;BR IF NO
 8984  060466  005716                        TST     (SP)                    ;;IS THIS THE FIRST RUBOUT?
 8985  060470  001007                        BNE     6$                      ;;BR IF NO
 8986  060472  112737  000134  060670        MOVB    #'\,9$                  ;;TYPE A BACK SLASH
 8987  060500  104401  060670                TYPE    ,9$
 8988  060504  012716  177777                MOV     #-1,(SP)                ;;SET THE RUBOUT KEY
 8989  060510  005303                  6$:   DEC     R3                      ;;BACKUP BY ONE
 8990  060512  020327  060672                CMP     R3,#$TTYIN              ;;STACK EMPTY?
 8991  060516  103434                        BLO     4$                      ;;BR IF YES
 8992  060520  111337  060670                MOVB    (R3),9$                 ;;SETUP TO TYPEOUT THE DELETED CHAR.
 8993  060524  104401  060670                TYPE    ,9$                     ;;GO TYPE
 8994  060530  000746                        BR      2$                      ;;GO READ ANOTHER CHAR.
 8995  060532  005716                  5$:   TST     (SP)                    ;;RUBOUT KEY SET?
 8996  060534  001406                        BEQ     7$                      ;;BR IF NO
 8997  060536  112737  000134  060670        MOVB    #'\,9$                  ;;TYPE A BACK SLASH
 8998  060544  104401  060670                TYPE    ,9$
 8999  060550  005016                        CLR     (SP)                    ;;CLEAR THE RUBOUT KEY
 9000  060552  122713  000025          7$:   CMPB    #25,(R3)                ;;IS CHARACTER A CTRL U?
 9001  060556  001003                        BNE     8$                      ;;BR IF NO
 9002  060560  104401  060702                TYPE    ,$CNTLU                 ;;TYPE A CONTROL "U"
 9003  060564  000726                        BR      1$                      ;;GO START OVER
 9004  060566  122713  000022          8$:   CMPB    #22,(R3)                ;;IS CHARACTER A "^R"?
 9005  060572  001011                        BNE     3$                      ;;BRANCH IF NO
 9006  060574  105013                        CLRB    (R3)                    ;;CLEAR THE CHARACTER
 9007  060576  104401  001211                TYPE    ,$CRLF                  ;;TYPE A "CR" & "LF"
 9008  060602  104401  060672                TYPE    ,$TTYIN                 ;;TYPE THE INPUT STRING
 9009  060606  000717                        BR      2$                      ;;GO PICKUP ANOTHER CHACTER
```

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9010  060610  104401  001210          4$:     TYPE    $QUES           ;;TYPE A '?'
9011  060614  000712                  BR      1$              ;;CLEAR THE BUFFER AND LOOP
9012  060616  111337  060670          3$:     MOVB    (R3),9$         ;;ECHO THE CHARACTER
9013  060622  104401  060670                  TYPE    9$
9014  060626  122723  000015                  CMPB    #15,(R3)+       ;;CHECK FOR RETURN
9015  060632  001305                  BNE     2$              ;;LOOP IF NOT RETURN
9016  060634  105063  177777                  CLRB    -1(R3)          ;;CLEAR RETURN (THE 15)
9017  060640  104401  001212                  TYPE    $LF             ;;TYPE A LINE FEED
9018  060644  005726                  TST     (SP)+           ;;CLEAN RUBOUT KEY FROM THE STACK
9019  060646  012603                  MOV     (SP)+,R3        ;;RESTORE R3
9020  060650  011646                  MOV     (SP),-(SP)      ;;ADJUST THE STACK AND PUT ADDRESS OF THE
9021  060652  016666  000004  000002          MOV     4(SP),2(SP)     ;;       FIRST ASCII CHARACTER ON IT
9022  060660  012766  060672  000004          MOV     #$TTYIN,4(SP)
9023  060666  000002                  RTI                     ;;RETURN
9024  060670     000          9$:     .BYTE   0               ;;STORAGE FOR ASCII CHAR. TO TYPE
9025  060671     000                  .BYTE   0               ;;TERMINATOR
9026  060672  000010          $TTYIN: .BLKB   8.              ;;RESERVE 8 BYTES FOR TTY INPUT
9027  060702  052536  005015     000  $CNTLU: .ASCIZ  /↑U/<15><12>    ;;CONTROL "U"
9028  060707     136  006507  000012  $CNTLG: .ASCIZ  /↑G/<15><12>    ;;CONTROL "G"
9029  060714  005015  053523  020122  $MSWR:  .ASCIZ  <15><12>/SWR = /
9030  060722  020075     000
9031  060725     040  047040  053505  $MNEW:  .ASCIZ  /  NEW = /
9032  060732  036440  000040
9033                                  .SBTTL  READ AN OCTAL NUMBER FROM THE TTY
9034
9035                                  ;;*****************************************************************
9036                                  ;*THIS ROUTINE WILL READ AN OCTAL (ASCII) NUMBER FROM THE TTY AND
9037                                  ;*CHANGE IT TO BINARY.
9038                                  ;*THE INPUT CHARACTERS WILL BE CHECKED TO INSURED THEY ARE LEGAL
9039                                  ;*OCTAL DIGITS. IF AN ILLEGAL CHARACTER IS READ A "?" WILL BE TYPED
9040                                  ;*FOLLOWED BY A CARRIAGE RETURN-LINE FEED. THE COMPLETE NUMBER MUST
9041                                  ;*THEN BE RETYPED. THE INPUT IS TERMINATED BY TYPING A CARRIAGE RETURN.
9042                                  ;*CALL:
9043                                  ;*      RDOCT                   ;;READ AN OCTAL NUMBER
9044                                  ;*      RETURN HERE             ;;LOW ORDER BITS ARE ON TOP OF THE STACK
9045                                  ;*                              ;;HIGH ORDER BITS ARE IN $HIOCT
9046
9047  060736  011646          $RDOCT: MOV     (SP),-(SP)      ;;PROVIDE SPACE FOR THE
9048  060740  016666  000004  000002          MOV     4(SP),2(SP)     ;;INPUT NUMBER
9049  060746  010046                  MOV     R0,-(SP)        ;;PUSH R0 ON STACK
9050  060750  010146                  MOV     R1,-(SP)        ;;PUSH R1 ON STACK
9051  060752  010246                  MOV     R2,-(SP)        ;;PUSH R2 ON STACK
9052  060754  104411          1$:     RDLIN                   ;;READ AN ASCIZ LINE
9053  060756  012600                  MOV     (SP)+,R0        ;;GET ADDRESS OF 1ST CHARACTER
9054  060760  010037  061064          MOV     R0,5$           ;;AND SAVE IT
9055  060764  005001                  CLR     R1              ;;CLEAR DATA WORD
9056  060766  005002                  CLR     R2
9057  060770  112046          2$:     MOVB    (R0)+,-(SP)     ;;PICKUP THIS CHARACTER
9058  060772  001420                  BEQ     3$              ;;IF ZERO GET OUT
9059  060774  122716  000060                  CMPB    #'0,(SP)        ;;MAKE SURE THIS CHARACTER
9060  061000  003026                  BGT     4$              ;;IS AN OCTAL DIGIT
9061  061002  122716  000067                  CMPB    #'7,(SP)
9062  061006  002423                  BLT     4$
9063  061010  006301                  ASL     R1              ;;*2
9064  061012  006102                  ROL     R2
9065  061014  006301                  ASL     R1              ;;*4
```

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 9066  061016  006102                        ROL     R2
 9067  061020  006301                        ASL     R1                      ;;*8
 9068  061022  006102                        ROL     R2
 9069  061024  042716  177770                BIC     #^C7,(SP)               ;;STRIP THE ASCII JUNK
 9070  061030  062601                        ADD     (SP)+,R1                ;;ADD IN THIS DIGIT
 9071  061032  000756                        BR      2$                      ;;LOOP
 9072  061034  005726                3$:     TST     (SP)+                   ;;CLEAN TERMINATOR FROM STACK
 9073  061036  010166  000012                MOV     R1,12(SP)               ;;SAVE THE RESULT
 9074  061042  010237  061074                MOV     R2,$HIOCT
 9075  061046  012602                        MOV     (SP)+,R2                ;;POP STACK INTO R2
 9076  061050  012601                        MOV     (SP)+,R1                ;;POP STACK INTO R1
 9077  061052  012600                        MOV     (SP)+,R0                ;;POP STACK INTO R0
 9078  061054  000002                        RTI                             ;;RETURN
 9079  061056  005726                4$:     TST     (SP)+                   ;;CLEAN PARTIAL FROM STACK
 9080  061060  105010                        CLRB    (R0)                    ;;SET A TERMINATOR
 9081  061062  104401                        TYPE                            ;;TYPE UP THRU THE BAD CHAR.
 9082  061064  000000                5$:     .WORD   0
 9083  061066  104401  001210                TYPE    $QUES                   ;;"?" "CR" & "LF"
 9084  061072  000730                        BR      1$                      ;;TRY AGAIN
 9085  061074  000000                $HIOCT: .WORD   0                       ;;HIGH ORDER BITS GO HERE
 9086                                  .SBTTL  SAVE AND RESTORE R0-R5 ROUTINES
 9087
 9088                                  ;;******************************************************************
 9089                                  ;*SAVE R0-R5
 9090                                  ;*CALL:
 9091                                  ;*      SAVREG
 9092                                  ;*UPON RETURN FROM $SAVREG THE STACK WILL LOOK LIKE:
 9093                                  ;*
 9094                                  ;*TOP---(+16)
 9095                                  ;* +2---(+18)
 9096                                  ;* +4---R5
 9097                                  ;* +6---R4
 9098                                  ;* +8---R3
 9099                                  ;*+10---R2
 9100                                  ;*+12---R1
 9101                                  ;*+14---R0
 9102
 9103  061076                        $SAVREG:
 9104  061076  010046                        MOV     R0,-(SP)                ;;PUSH R0 ON STACK
 9105  061100  010146                        MOV     R1,-(SP)                ;;PUSH R1 ON STACK
 9106  061102  010246                        MOV     R2,-(SP)                ;;PUSH R2 ON STACK
 9107  061104  010346                        MOV     R3,-(SP)                ;;PUSH R3 ON STACK
 9108  061106  010446                        MOV     R4,-(SP)                ;;PUSH R4 ON STACK
 9109  061110  010546                        MOV     R5,-(SP)                ;;PUSH R5 ON STACK
 9110  061112  016646  000022                MOV     22(SP),-(SP)            ;;SAVE PS OF MAIN FLOW
 9111  061116  016646  000022                MOV     22(SP),-(SP)            ;;SAVE PC OF MAIN FLOW
 9112  061122  016646  000022                MOV     22(SP),-(SP)            ;;SAVE PS OF CALL
 9113  061126  016646  000022                MOV     22(SP),-(SP)            ;;SAVE PC OF CALL
 9114  061132  000002                        RTI
 9115
 9116                                  ;*RESTORE R0-R5
 9117                                  ;*CALL:
 9118                                  ;*      RESREG
 9119  061134                        $RESREG:
 9120  061134  012666  000022                MOV     (SP)+,22(SP)            ;;RESTORE PC OF CALL
 9121  061140  012666  000022                MOV     (SP)+,22(SP)            ;;RESTORE PS OF CALL
```

```
9122  061144  012666  000022            MOV     (SP)+,22(SP)    ;;RESTORE PC OF MAIN FLOW
9123  061150  012666  000022            MOV     (SP)+,22(SP)    ;;RESTORE PS OF MAIN FLOW
9124  061154  012605                    MOV     (SP)+,R5        ;;POP STACK INTO R5
9125  061156  012604                    MOV     (SP)+,R4        ;;POP STACK INTO R4
9126  061160  012603                    MOV     (SP)+,R3        ;;POP STACK INTO R3
9127  061162  012602                    MOV     (SP)+,R2        ;;POP STACK INTO R2
9128  061164  012601                    MOV     (SP)+,R1        ;;POP STACK INTO R1
9129  061166  012600                    MOV     (SP)+,R0        ;;POP STACK INTO R0
9130  061170  000002                    RTI
9131
9132                            .SBTTL  POWER DOWN AND UP ROUTINES
9133
9134                            ;;**************************************************************
9135                            ;POWER DOWN ROUTINE
9136  061172  017737  117742  002026 $PWRDN: MOV     @#SWR,SAVSWR    ;SAVE SWITCH REGISTER
9137  061200  012737  061220  000024         MOV     #$PWRUP,PWRVEC  ;SET UP VECTOR
9138  061206  012737  000340  000026         MOV     #PR7,PWRVEC+2
9139  061214  000000                        HALT
9140  061216  000776                        BR      .-2     ;HANG UP
9141
9142                            ;;**************************************************************
9143                            ;POWER UP ROUTINE
9144  061220  005037  061310    $PWRUP: CLR     $PWRCT          ;LOAD WAIT COUNT
9145  061224  012737  000144  061312         MOV     #100.,$PWRCT+2
9146  061232  005237  061310    1$:     INC     $PWRCT          ;WAIT FOR TELETYPE
9147  061236  001375                        BNE     1$
9148  061240  005337  061312                DEC     $PWRCT+2
9149  061244  001372                        BNE     1$
9150  061246  012737  061172  000024         MOV     #$PWRDN,PWRVEC  ;SET UP FOR POWER DOWN VECTOR
9151  061254  012737  000340  000026         MOV     #PR7,PWRVEC+2
9152  061262  012706  001100                MOV     #STACK,SP       ;FORCE STACK
9153  061266  104401  061314                TYPE    ,$POWER         ;TYPE POWER
9154  061272  004737  055264                JSR     PC,CHKPAR       ;REINITIALIZE MEMORY CHECK ENABLE
9155  061276  013777  002026  117634       MOV     SAVSWR,@#SWR    ;RESTORE SWITCH REGISTER
9156  061304  000177  117576                JMP     @#LPADR         ;GO BACK TO LAST TEST
9157
9158  061310  000000  000000    $PWRCT: .WORD   0,0             ;TELETYPE TIME OUT
9159  061314  047520  042527  000122 $POWER: .ASCIZ  /POWER/
9160                                         .EVEN
9161                            .SBTTL  TRAP DECODER
9162
9163                            ;;**************************************************************
9164                            ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
9165                            ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
9166                            ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
9167                            ;*GO TO THAT ROUTINE.
9168
9169  061322  010046            $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
9170  061324  016600  000002            MOV     2(SP),R0        ;;GET TRAP ADDRESS
9171  061330  005740                    TST     -(R0)           ;;BACKUP BY 2
9172  061332  111000                    MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
9173  061334  006300                    ASL     R0              ;;POSITION FOR INDEXING
9174  061336  016000  061356            MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
9175  061342  000200                    RTS     R0              ;;GO TO ROUTINE
9176
9177
```

```
 9178
 9179
 9180  061344  011646                    $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
 9181  061346  016666  000004  000002            MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
 9182  061354  000002                            RTI                     ;;RESTORE THE PSW
 9183
 9184                                    .SBTTL  TRAP TABLE
 9185
 9186                                    ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
 9187                                    ;*BY THE "TRAP" INSTRUCTION.
 9188
 9189                                    ;       ROUTINE
 9190                                    ;       -------
 9191  061356  061344                    $TRPAD: .WORD   $TRAP2
 9192  061360  057100                            $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
 9193  061362  057406                            $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
 9194  061364  057362                            $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
 9195  061366  057422                            $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
 9196  061370  057610                            $TYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)
 9197
 9198  061372  060104                            $GTSWR  ;;CALL=GTSWR    TRAP+6(104406)  GET SOFT-SWR SETTING
 9199
 9200  061374  060034                            $CKSWR  ;;CALL=CKSWR    TRAP+7(104407)  TEST FOR CHANGE IN SOFT-SWR
 9201  061376  060316                            $RDCHR  ;;CALL=RDCHR    TRAP+10(104410) TTY TYPEIN CHARACTER ROUTINE
 9202  061400  060436                            $RDLIN  ;;CALL=RDLIN    TRAP+11(104411) TTY TYPEIN STRING ROUTINE
 9203  061402  060736                            $RDOCT  ;;CALL=RDOCT    TRAP+12(104412) READ AN OCTAL NUMBER FROM TTY
 9204  061404  061076                            $SAVREG ;;CALL=SAVREG   TRAP+13(104413) SAVE R0-R5 ROUTINE
 9205  061406  061134                            $RESREG ;;CALL=RESREG   TRAP+14(104414) RESTORE R0-R5 ROUTINE
 9206  061410  056124                            SCOP1$  ;;CALL=SCOP1    TRAP+15(104415) INTERNAL LOOP ON ERROR
```

```
                                        .SBTTL  DATA TABLE FOR ERROR PRINT OUT

061412  001220  002024                DT000:  .WORD   $TESTN,TRAPPC
061416  001220  001116  001122        DT001:  .WORD   $TESTN,$ERRPC,$BDADR
061424  001220  001116  001124        DT002:  .WORD   $TESTN,$ERRPC,$GDDAT,$BDDAT
061432  001126
061434  001220  001116  002010        DT003:  .WORD   $TESTN,$ERRPC,CONFIG,$GDDAT,$BDDAT
061442  001124  001126
061446  001220  001116  002014        DT004:  .WORD   $TESTN,$ERRPC,PREREG,$GDDAT,$BDDAT
061454  001124  001126
061460  001220  001116                DT005:  .WORD   $TESTN,$ERRPC
061464  001220  001116  002000        DT006:  .WORD   $TESTN,$ERRPC,RKVEC,$BDADR
061472  001122
061474  001220  001116  002020        DT011:  .WORD   $TESTN,$ERRPC,PRIOR
061502  001220  001116  001740        DT016:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.CS2,T.CS2
061510  001700  001750  001710
061516  001220  001116  001740        DT024:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.CS2,T.CS2,SILCNT
061524  001700  001750  001710
061532  002022
061534  001220  001116  001740        DT026:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.CS2,T.CS2,SILCNT,$GDDAT,$BDDAT
061542  001700  001750  001710
061550  002022  001124  001126
```

```
                                        .SBTTL  DATA FORMAT FOR ERROR PRINT OUT
                                
061556  000001          DF000:  .WORD   1
061560      002  000            .BYTE   2,0
061562  000004          DF001:  .WORD   4                       ;ERROR 1
061564      000  000            .BYTE   0,0
061566  062251                  .WORD   DH000A
061570      000  000            .BYTE   0,0
061572  062267                  .WORD   DH000B
061574      002  000            .BYTE   2,0
061576  062332                  .WORD   DH001
061600      001  000            .BYTE   1,0
061602  000005          DF002:  .WORD   5                       ;ERROR 2
061604      000  000            .BYTE   0,0
061606  062251                  .WORD   DH000A
061610      000  000            .BYTE   0,0
061612  062267                  .WORD   DH000B
061614      002  000            .BYTE   2,0
061616  062351                  .WORD   DH002A
061620      000  000            .BYTE   0,0
061622  062370                  .WORD   DH002B
061624      002  000            .BYTE   2,0
061626  000005          DF003:  .WORD   5                       ;ERROR 3
061630      000  000            .BYTE   0,0
061632  062251                  .WORD   DH000A
061634      000  000            .BYTE   0,0
061636  062267                  .WORD   DH000B
061640      002  000            .BYTE   2,0
061642  062406                  .WORD   DH003A
061644      000  000            .BYTE   0,0
061646  062435                  .WORD   DH003B
061650      003  000            .BYTE   3,0
061652  000005          DF004:  .WORD   5                       ;ERROR 4
061654      000  000            .BYTE   0,0
061656  062251                  .WORD   DH000A
061660      000  000            .BYTE   0,0
061662  062267                  .WORD   DH000B
061664      002  000            .BYTE   2,0
061666  062463                  .WORD   DH004A
061670      000  000            .BYTE   0,0
061672  062512                  .WORD   DH004B
061674      003  000            .BYTE   3,0
061676  000003          DF005:  .WORD   3                       ;ERROR 5
061700      000  000            .BYTE   0,0
061702  062251                  .WORD   DH000A
061704      000  000            .BYTE   0,0
061706  062267                  .WORD   DH000B
061710      002  000            .BYTE   2,0
061712  000005          DF006:  .WORD   5                       ;ERROR 6
061714      000  000            .BYTE   0,0
061716  062251                  .WORD   DH000A
061720      000  000            .BYTE   0,0
061722  062267                  .WORD   DH000B
061724      002  000            .BYTE   2,0
061726  062540                  .WORD   DH006A
061730      000  000            .BYTE   0,0
```

```
9285  061732  062557                        .WORD   DH006B
9286  061734      002  000                  .BYTE   2,0
9287  061736  000004              DF011:    .WORD   4               ;ERROR 11
9288  061740      000  000                  .BYTE   0,0
9289  061742  062251                        .WORD   DH000A
9290  061744      000  000                  .BYTE   0,0
9291  061746  062267                        .WORD   DH000B
9292  061750      002  000                  .BYTE   2,0
9293  061752  062576                        .WORD   DH011
9294  061754      001  000                  .BYTE   1,0
9295  061756  000005              DF016:    .WORD   5               ;ERROR 16
9296  061760      000  000                  .BYTE   0,0
9297  061762  062251                        .WORD   DH000A
9298  061764      000  000                  .BYTE   0,0
9299  061766  062267                        .WORD   DH000B
9300  061770      002  000                  .BYTE   2,0
9301  061772  062540                        .WORD   DH006A
9302  061774      000  000                  .BYTE   0,0
9303  061776  062660                        .WORD   DH016B
9304  062000      004  000                  .BYTE   4,0
9305  062002  000005              DF024:    .WORD   5               ;ERROR 24
9306  062004      000  000                  .BYTE   0,0
9307  062006  062251                        .WORD   DH000A
9308  062010      000  000                  .BYTE   0,0
9309  062012  062267                        .WORD   DH000B
9310  062014      002  000                  .BYTE   2,0
9311  062016  062716                        .WORD   DH024A
9312  062020      000  000                  .BYTE   0,0
9313  062022  062763                        .WORD   DH024B
9314  062024      005  000                  .BYTE   5,0
9315  062026  000005              DF026:    .WORD   5               ;ERROR 26
9316  062030      000  000                  .BYTE   0,0
9317  062032  062251                        .WORD   DH000A
9318  062034      000  000                  .BYTE   0,0
9319  062036  062267                        .WORD   DH000B
9320  062040      002  000                  .BYTE   2,0
9321  062042  063030                        .WORD   DH026A
9322  062044      000  000                  .BYTE   0,0
9323  062046  063117                        .WORD   DH026B
9324  062050      007  000                  .BYTE   7,0
```

```
                                        .SBTTL  ASCII MESSAGES

062052  005015  045522  030466  OPR001: .ASCIZ  <15><12>/RK611 BUS ADDRESS ( /
062060  020061  052502  020123
062066  042101  051104  051505
062074  020123  020050     000
062101     040  020051  020075  OPR002: .ASCIZ  / ) = /
062106     000
062107     122  033113  030461  OPR003: .ASCIZ  /RK611 VECTOR ADDRESS ( /
062114  053040  041505  047524
062122  020122  042101  051104
062130  051505  020123  020050
062136     000
062137     122  033113  030461  OPR004: .ASCIZ  /RK611 PRIORITY ( /
062144  050040  044522  051117
062152  052111  020131  020050
062160     000
062161     040  000040          SPACE2: .ASCIZ  /  /
062164  005015  051120  043517  ABORT:  .ASCIZ  <15><12>/PROGRAM ABORTED BECAUSE ERROR THRESHOLD EXCEEDED/<15><12>
062172  040522  020115  041101
062200  051117  042524  020104
062206  042502  040503  051525
062214  020105  051105  047522
062222  020122  044124  042522
062230  044123  046117  020104
062236  054105  042503  042105
062244  042105  005015     000
```

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                                        .SBTTL  DATA HEADERS
                                
 062251   124  051505  020124  DH000A: .ASCIZ  /TEST    ERROR/
 062256  020040  042440  051122
 062264  051117     000
 062267   116  046525  020040  DH000B: .ASCIZ  /NUM     PC/
 062274  020040  050040  000103
 062302  042524  052123  020040  DH000C: .ASCII  /TEST    TRAP/<15><12>
 062310  020040  051124  050101
 062316  005015
 062320  052516  020115  020040          .ASCIZ  /NUM    PC/
 062326  050040  000103
 062332  047125  041111  051525  DH001:  .ASCIZ  /UNIBUS ADDRESS/
 062340  040440  042104  042522
 062346  051523     000
 062351   105  050130  041505  DH002A: .ASCIZ  /EXPECT  ACTUAL/
 062356  020124  040440  052103
 062364  040525  000114
 062370  040526  053114  020105  DH002B: .ASCIZ  /VALVE   VALUE/
 062376  020040  040526  052514
 062404  000105
 062406  040526  052514  020105  DH003A: .ASCIZ  /VALUE   EXPECT  ACTUAL/
 062414  020040  054105  042520
 062422  052103  020040  041501
 062430  052524  046101     000
 062435   127  044522  052124  DH003B: .ASCIZ  /WRITTEN VALVE   VALUE/
 062442  047105  053040  046101
 062450  042526  020040  053040
 062456  046101  042525     000
 062463   120  042522  020126  DH004A: .ASCIZ  /PREV    EXPECT  ACTUAL/
 062470  020040  042440  050130
 062476  041505  020124  040440
 062504  052103  040525  000114
 062512  040526  052514  020105  DH004B: .ASCIZ  /VALUE   VALVE   VALVE/
 062520  020040  040526  053114
 062526  020105  020040  040526
 062534  053114  000105
 062540  054105  042520  052103  DH006A: .ASCIZ  /EXPECT  ACTUAL/
 062546  020040  041501  052524
 062554  046101     000
 062557   126  041505  047524  DH006B: .ASCIZ  /VECTOR  VECTOR/
 062564  020122  053040  041505
 062572  047524  000122
 062576  051120  041517  051505  DH011:  .ASCIZ  /PROCESSOR PRIORITY/
 062604  047523  020122  051120
 062612  047511  044522  054524
 062620     000
 062621   105  050130  041505  DH016A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL/
 062626  020124  040440  052103
 062634  040525  020114  042440
 062642  050130  041505  020124
 062650  040440  052103  040525
 062656  000114
 062660  045522  051503  020061  DH016B: .ASCIZ  /RKCS1   RKCS1   RKCS2   RKCS2/
 062666  020040  045522  051503
 062674  020061  020040  045522
```

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 9408  062702  051503  020062  020040
 9409  062710  045522  051503  000062
 9410  062716  054105  042520  052103  DH024A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL  SILO/
 9411  062724  020040  041501  052524
 9412  062732  046101  020040  054105
 9413  062740  042520  052103  020040
 9414  062746  041501  052524  046101
 9415  062754  020040  044523  047514
 9416  062762     000
 9417  062763     122  041513  030523  DH024B: .ASCIZ  /RKCS1   RKCS1   RKCS2   RKCS2   WORD/
 9418  062770  020040  051040  041513
 9419  062776  030523  020040  051040
 9420  063004  041513  031123  020040
 9421  063012  051040  041513  031123
 9422  063020  020040  053440  051117
 9423  063026  000104
 9424  063030  054105  042520  052103  DH026A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL  SILO    EXPECT  ACTUAL/
 9425  063036  020040  041501  052524
 9426  063044  046101  020040  054105
 9427  063052  042520  052103  020040
 9428  063060  041501  052524  046101
 9429  063066  020040  044523  047514
 9430  063074  020040  020040  054105
 9431  063102  042520  052103  020040
 9432  063110  041501  052524  046101
 9433  063116     000
 9434  063117     122  041513  030523  DH026B: .ASCIZ  /RKCS1   RKCS1   RKCS2   RKCS2   WORD    DATA    DATA/
 9435  063124  020040  051040  041513
 9436  063132  030523  020040  051040
 9437  063140  041513  031123  020040
 9438  063146  051040  041513  031123
 9439  063154  020040  053440  051117
 9440  063162  020104  020040  042040
 9441  063170  052101  020101  020040
 9442  063176  042040  052101  000101
```

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                                        .SBTTL  ERROR MESSAGES
                                
063204 047125 054105 042520 EM000:  .ASCIZ  /UNEXPECTED MEMORY PARITY ENABLE TRAP/
063212 052103 042105 046440
063220 046505 051117 020131
063226 040520 044522 054524
063234 042440 040516 046102
063242 020105 051124 050101
063250    000
063251    116 047117 042455 EM1:    .ASCIZ  /NON-EXISTENT MEMORY WHEN ACCESSING RK611 REG/
063256 044530 052123 047105
063264 020124 042515 047515
063272 054522 053440 042510
063300 020116 041501 042503
063306 051523 047111 020107
063314 045522 030466 020061
063322 042522 000107
063326 052101 042524 050115 EM2:    .ASCIZ  /ATTEMPTING TO CLEAR RK611 WITH A UNIBUS INIT/
063334 044524 043516 052040
063342 020117 046103 040505
063350 020122 045522 030466
063356 020061 044527 044124
063364 040440 052440 044516
063372 052502 020123 047111
063400 052111    000
063403    101 052124 046505 EM3:    .ASCIZ  /ATTEMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR/
063410 052120 047111 020107
063416 047524 041440 042514
063424 051101 051040 033113
063432 030461 053440 052111
063440 020110 020101 047503
063446 052116 047522 046114
063454 051105 041440 042514
063462 051101    000
063465    101 052124 046505 EM4:    .ASCIZ  /ATTEMPTING TO WRITE BUS ADD/
063472 052120 047111 020107
063500 047524 053440 044522
063506 042524 041040 051525
063514 040440 042104    000
063521    101 052124 046505 EM5:    .ASCIZ  /ATTEMPTING TO CLEAR BUS ADD WITH A UNIBUS INIT/
063526 052120 047111 020107
063534 047524 041440 042514
063542 051101 041040 051525
063550 040440 042104 053440
063556 052111 020110 020101
063564 047125 041111 051525
063572 044440 044516 000124
063600 052101 042524 050115 EM6:    .ASCII  /ATTEMPTING TO CLEAR BUS ADD/
063606 044524 043516 052040
063614 020117 046103 040505
063622 020122 052502 020123
063630 042101    104
063633    127 052111 020110        .ASCIZ  /WITH A CONTROLLER CLEAR/
063640 020101 047503 052116
063646 047522 046114 051105
063654 041440 042514 051101
```

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 9499  063662      000
 9500  063663      101  052124  046505  EM7:    .ASCIZ  /ATTEMPTING TO WRITE WORD COUNT/
 9501  063670  052120  047111  020107
 9502  063676  047524  053440  044522
 9503  063704  042524  053440  051117
 9504  063712  020104  047503  047125
 9505  063720  000124
 9506  063722  052101  042524  050115  EM8:    .ASCIZ  /ATTEMPTING TO WRITE DISK ADD/
 9507  063730  044524  043516  052040
 9508  063736  020117  051127  052111
 9509  063744  020105  044504  045523
 9510  063752  040440  042104      000
 9511  063757      101  052124  046505  EM9:    .ASCIZ  /ATTEMPTING TO WRITE SPARE REG/
 9512  063764  052120  047111  020107
 9513  063772  047524  053440  044522
 9514  064000  042524  051440  040520
 9515  064006  042522  051040  043505
 9516  064014      000
 9517  064015      101  052124  046505  EM10:   .ASCIZ  /ATTEMPTING TO WRITE DRIVE STATUS REG/
 9518  064022  052120  047111  020107
 9519  064030  047524  053440  044522
 9520  064036  042524  042040  044522
 9521  064044  042526  051440  040524
 9522  064052  052524  020123  042522
 9523  064060  000107
 9524  064062  052101  042524  050115  EM11:   .ASCIZ  /ATTEMPTING TO WRITE ERROR REG/
 9525  064070  044524  043516  052040
 9526  064076  020117  051127  052111
 9527  064104  020105  051105  047522
 9528  064112  020122  042522  000107
 9529  064120  052101  042524  050115  EM12:   .ASCIZ  /ATTEMPTING TO WRITE MAINT.REG 2/
 9530  064126  044524  043516  052040
 9531  064134  020117  051127  052111
 9532  064142  020105  040515  047111
 9533  064150  027124  042522  020107
 9534  064156  000062
 9535  064160  052101  042524  050115  EM13:   .ASCIZ  /ATTEMPTING TO WRITE MAINT REG 3/
 9536  064166  044524  043516  052040
 9537  064174  020117  051127  052111
 9538  064202  020105  040515  047111
 9539  064210  020124  042522  020107
 9540  064216  000063
 9541  064220  052101  042524  050115  EM14:   .ASCIZ  /ATTEMPTING TO WRITE ECC PATTERN/
 9542  064226  044524  043516  052040
 9543  064234  020117  051127  052111
 9544  064242  020105  041505  020103
 9545  064250  040520  052124  051105
 9546  064256  000116
 9547  064260  052101  042524  050115  EM15:   .ASCIZ  /ATTEMPTING TO WRITE ECC POSITION/
 9548  064266  044524  043516  052040
 9549  064274  020117  051127  052111
 9550  064302  020105  041505  020103
 9551  064310  047520  044523  044524
 9552  064316  047117      000
 9553  064321      101  052124  046505  EM16:   .ASCIZ  /ATTEMPTING TO WRITE CS1/
 9554  064326  052120  047111  020107
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 9555   064334   047524   053440   044522
 9556   064342   042524   041440   030523
 9557   064350      000
 9558   064351      101   052124   046505  EM17:   .ASCIZ  "ATTEMPTING TO WRITE ATTENTION SUMMARY/OFFSET"
 9559   064356   052120   047111   020107
 9560   064364   047524   053440   044522
 9561   064372   042524   040440   052124
 9562   064400   047105   044524   047117
 9563   064406   051440   046525   040515
 9564   064414   054522   047457   043106
 9565   064422   042523   000124
 9566   064426   052101   042524   050115  EM18:   .ASCIZ  /ATTEMPTING TO WRITE CS2/
 9567   064434   044524   043516   052040
 9568   064442   020117   051127   052111
 9569   064450   020105   051503   000062
 9570   064456   052101   042524   050115  EM19:   .ASCIZ  /ATTEMPTING TO WRITE DISK CYL ADD/
 9571   064464   044524   043516   052040
 9572   064472   020117   051127   052111
 9573   064500   020105   044504   045523
 9574   064506   041440   046131   040440
 9575   064514   042104      000
 9576   064517      101   052124   046505  EM20:   .ASCIZ  /ATTEMPTING TO WRITE MAINT REG 1/
 9577   064524   052120   047111   020107
 9578   064532   047524   053440   044522
 9579   064540   042524   046440   044501
 9580   064546   052116   051040   043505
 9581   064554   030440      000
 9582   064557      101   052124   046505  EM21:   .ASCII  /ATTEMPTING TO CLEAR BUS ADD /
 9583   064564   052120   047111   020107
 9584   064572   047524   041440   042514
 9585   064600   051101   041040   051525
 9586   064606   040440   042104      040
 9587   064613      127   052111   020110          .ASCIZ  /WITH A SUB CLEAR/
 9588   064620   020101   052523   020102
 9589   064626   046103   040505   000122
 9590   064634   052101   042524   050115  EM22:   .ASCII  /ATTEMPTING TO CLEAR CS1 /
 9591   064642   044524   043516   052040
 9592   064650   020117   046103   040505
 9593   064656   020122   051503   020061
 9594   064664   044527   044124   040440          .ASCIZ  /WITH A SUB CLEAR/
 9595   064672   051440   041125   041440
 9596   064700   042514   051101      000
 9597   064705      101   052124   046505  EM23:   .ASCIZ  /ATTEMPTING TO CLEAR RK611 WITH A SUBSYSTEM CLEAR/
 9598   064712   052120   047111   020107
 9599   064720   047524   041440   042514
 9600   064726   051101   051040   033113
 9601   064734   030461   053440   052111
 9602   064742   020110   020101   052523
 9603   064750   051502   051531   042524
 9604   064756   020115   046103   040505
 9605   064764   000122
 9606   064766   047111   051124   042040  EM24:   .ASCII  /INTR DID NOT OCCUR WHEN READY AND/<15><12>
 9607   064774   042111   047040   052117
 9608   065002   047440   041503   051125
 9609   065010   053440   042510   020116
 9610   065016   042522   042101   020131
```

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 9611  065024  047101  006504     012
 9612  065031     111  052116  020122          .ASCIZ  /INTR ENABLE SET IN CS1/
 9613  065036  047105  041101  042514
 9614  065044  051440  052105  044440
 9615  065052  020116  051503  000061
 9616  065060  047125  054105  042520  EM25:   .ASCIZ  /UNEXPECTED INTR WHEN PROCESSOR PRIORITY LOWERED/
 9617  065066  052103  042105  044440
 9618  065074  052116  020122  044127
 9619  065102  047105  050040  047522
 9620  065110  042503  051523  051117
 9621  065116  050040  044522  051117
 9622  065124  052111  020131  047514
 9623  065132  042527  042522  000104
 9624  065140  047111  051124  053040  EM26:   .ASCIZ  /INTR VECTOR ADDRESS INCORRECT/
 9625  065146  041505  047524  020122
 9626  065154  042101  051104  051505
 9627  065162  020123  047111  047503
 9628  065170  051122  041505  000124
 9629  065176  047111  051124  042040  EM27:   .ASCIZ  /INTR DID NOT CLEAR IN RK611/
 9630  065204  042111  047040  052117
 9631  065212  041440  042514  051101
 9632  065220  044440  020116  045522
 9633  065226  030466  000061
 9634  065232  054105  042520  052103  EM28:   .ASCIZ  /EXPECTED INTR DID NOT OCCUR AT PROCESSOR PRIORITY/
 9635  065240  042105  044440  052116
 9636  065246  020122  044504  020104
 9637  065254  047516  020124  041517
 9638  065262  052503  020122  052101
 9639  065270  050040  047522  042503
 9640  065276  051523  051117  050040
 9641  065304  044522  051117  052111
 9642  065312  000131
 9643  065314  047125  054105  042520  EM29:   .ASCIZ  /UNEXPECTED INTR OCCURRED AT PROCESSOR PRIORITY/
 9644  065322  052103  042105  044440
 9645  065330  052116  020122  041517
 9646  065336  052503  051122  042105
 9647  065344  040440  020124  051120
 9648  065352  041517  051505  047523
 9649  065360  020122  051120  047511
 9650  065366  044522  054524     000
 9651  065373     111  052116  020122  EM30:   .ASCIZ  /INTR DID NOT OCCUR WHEN PRIORITY LOWERED/
 9652  065400  044504  020104  047516
 9653  065406  020124  041517  052503
 9654  065414  020122  044127  047105
 9655  065422  050040  044522  051117
 9656  065430  052111  020131  047514
 9657  065436  042527  042522  000104
 9658  065444  042523  052124  047111  EM31:   .ASCIZ  /SETTING INTR ENABLE CAUSED EXPECTED INTR/
 9659  065452  020107  047111  051124
 9660  065460  042440  040516  046102
 9661  065466  020105  040503  051525
 9662  065474  042105  042440  050130
 9663  065502  041505  042524  020104
 9664  065510  047111  051124     000
 9665  065515     103  047117  051124  EM32:   .ASCIZ  /CONTROLLER CLEAR DID CLEAR PENDING INTR/
 9666  065522  046117  042514  020122
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 9667  065530  046103  040505  020122
 9668  065536  044504  020104  046103
 9669  065544  040505  020122  042520
 9670  065552  042116  047111  020107
 9671  065560  047111  051124     000
 9672  065565     101  052124  046505  EM33:   .ASCIZ  /ATTEMPTING TO WRITE ONE WORD OR DATA/
 9673  065572  052120  047111  020107
 9674  065600  047524  053440  044522
 9675  065606  042524  047440  042516
 9676  065614  053440  051117  020104
 9677  065622  051117  042040  052101
 9678  065630  000101
 9679  065632  052101  042524  050115  EM34:   .ASCIZ  /ATTEMPTING TO READ SILO WHEN EMPTY/
 9680  065640  044524  043516  052040
 9681  065646  020117  042522  042101
 9682  065654  051440  046111  020117
 9683  065662  044127  047105  042440
 9684  065670  050115  054524     000
 9685  065675     101  052124  046505  EM35:   .ASCIZ  /ATTEMPTING TO CLEAR DATA LATA/
 9686  065702  052120  047111  020107
 9687  065710  047524  041440  042514
 9688  065716  051101  042040  052101
 9689  065724  020101  040514  040524
 9690  065732     000
 9691  065733     101  052124  046505  EM36:   .ASCIZ  /ATTEMPTING TO READ SILO CONTAINING ONE WORD/
 9692  065740  052120  047111  020107
 9693  065746  047524  051040  040505
 9694  065754  020104  044523  047514
 9695  065762  041440  047117  040524
 9696  065770  047111  047111  020107
 9697  065776  047117  020105  047527
 9698  066004  042122     000
 9699  066007     101  052124  046505  EM37:   .ASCIZ  /ATTEMPTING TO LOAD SILO/
 9700  066014  052120  047111  020107
 9701  066022  047524  046040  040517
 9702  066030  020104  044523  047514
 9703  066036     000
 9704  066037     101  052124  046505  EM38:   .ASCIZ  /ATTEMPTING TO READ SILO/
 9705  066044  052120  047111  020107
 9706  066052  047524  051040  040505
 9707  066060  020104  044523  047514
 9708  066066     000
 9709  066067     101  052124  046505  EM39:   .ASCIZ  /ATTEMPTING TO LOAD FULL SILO (66 WORDS)/
 9710  066074  052120  047111  020107
 9711  066102  047524  046040  040517
 9712  066110  020104  052506  046114
 9713  066116  051440  046111  020117
 9714  066124  033050  020066  047527
 9715  066132  042122  024523     000
 9716  066137     104  052101  020101  EM40:   .ASCIZ  /DATA LATE DID NOT CAUSE EXPECTED INTR/
 9717  066144  040514  042524  042040
 9718  066152  042111  047040  052117
 9719  066160  041440  052501  042523
 9720  066166  042440  050130  041505
 9721  066174  042524  020104  047111
 9722  066202  051124     000
```

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 9723  066205      125  042516  050130  EM41:   .ASCIZ  /UNEXPECTED INTR DUE TO UNCLEARED CONTROLLER ERROR/
 9724  066212  041505  042524  020104
 9725  066220  047111  051124  042040
 9726  066226  042525  052040  020117
 9727  066234  047125  046103  040505
 9728  066242  042522  020104  047503
 9729  066250  052116  047522  046114
 9730  066256  051105  042440  051122
 9731  066264  051117      000
 9732  066267      103  047117  051124  EM42:   .ASCII  /CONTROLLER CLEAR DID NOT CLEAR PENDING INTR/<15><12>
 9733  066274  046117  042514  020122
 9734  066302  046103  040505  020122
 9735  066310  044504  020104  047516
 9736  066316  020124  046103  040505
 9737  066324  020122  042520  042116
 9738  066332  047111  020107  047111
 9739  066340  051124  005015
 9740  066344  052504  020105  047524          .ASCIZ  /DUE TO CONTROLLER ERROR/
 9741  066352  041440  047117  051124
 9742  066360  046117  042514  020122
 9743  066366  051105  047522  000122
 9744  066374  047503  052116  047522  EM43:   .ASCIZ  /CONTROLLER ERROR CAUSED INTR WITH INTR ENABLE RESET/
 9745  066402  046114  051105  042440
 9746  066410  051122  051117  041440
 9747  066416  052501  042523  020104
 9748  066424  047111  051124  053440
 9749  066432  052111  020110  047111
 9750  066440  051124  042440  040516
 9751  066446  046102  020105  042522
 9752  066454  042523  000124
 9753  066460  047111  051124  042040  EM44:   .ASCII  /INTR DID NOT OCCUR WHEN INTR ENABLE SET/
 9754  066466  042111  047040  052117
 9755  066474  047440  041503  051125
 9756  066502  053440  042510  020116
 9757  066510  047111  051124  042440
 9758  066516  040516  046102  020105
 9759  066524  042523      124
 9760  066527      015  053412  052111          .ASCIZ  <15><12>/WITH INTR PENDING DUE TO DATA LATE/
 9761  066534  020110  047111  051124
 9762  066542  050040  047105  044504
 9763  066550  043516  042040  042525
 9764  066556  052040  020117  040504
 9765  066564  040524  046040  052101
 9766  066572  000105
 9767  066574  051503  020061  047111  EM1000: .ASCIZ  /CS1 INCORRECT/
 9768  066602  047503  051122  041505
 9769  066610  000124
 9770  066612  047527  042122  041440  EM1001: .ASCIZ  /WORD COUNT INCORRECT/
 9771  066620  052517  052116  044440
 9772  066626  041516  051117  042522
 9773  066634  052103      000
 9774  066637      102  051525  040440  EM1002: .ASCIZ  /BUS ADD INCORRECT/
 9775  066644  042104  044440  041516
 9776  066652  051117  042522  052103
 9777  066660      000
 9778  066661      104  051511  020113  EM1003: .ASCIZ  /DISK ADD INCORRECT/
```

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 9779   066666   042101   020104   047111
 9780   066674   047503   051122   041505
 9781   066702   000124
 9782   066704   051503   020062   047111  EM1004: .ASCIZ  /CS2 INCORRECT/
 9783   066712   047503   051122   041505
 9784   066720   000124
 9785   066722   051104   053111   020105  EM1005: .ASCIZ  /DRIVE STATUS REG INCORRECT/
 9786   066730   052123   052101   051525
 9787   066736   051040   043505   044440
 9788   066744   041516   051117   042522
 9789   066752   052103      000
 9790   066755      105   051122   051117  EM1006: .ASCIZ  /ERROR REG INCORRECT/
 9791   066762   051040   043505   044440
 9792   066770   041516   051117   042522
 9793   066776   052103      000
 9794   067001      101   052124   047105  EM1007: .ASCIZ  "ATTENTION SUMMARY/OFFSET INCORRECT"
 9795   067006   044524   047117   051440
 9796   067014   046525   040515   054522
 9797   067022   047457   043106   042523
 9798   067030   020124   047111   047503
 9799   067036   051122   041505   000124
 9800   067044   040504   040524   041040  EM1008: .ASCIZ  /DATA BUFFER INCORRECT/
 9801   067052   043125   042506   020122
 9802   067060   047111   047503   051122
 9803   067066   041505   000124
 9804   067072   040515   047111   020124  EM1009: .ASCIZ  /MAINT REG 1 INCORRECT/
 9805   067100   042522   020107   020061
 9806   067106   047111   047503   051122
 9807   067114   041505   000124
 9808   067120   041505   020103   047520  EM1012: .ASCIZ  /ECC POS INCORRECT/
 9809   067126   020123   047111   047503
 9810   067134   051122   041505   000124
 9811   067142   041505   020103   040520  EM1013: .ASCIZ  /ECC PAT INCORRECT/
 9812   067150   020124   047111   047503
 9813   067156   051122   041505   000124
 9814   067164   051503   020061   044103  EM1014: .ASCIZ  /CS1 CHANGED AFTER READING ALL REGS/
 9815   067172   047101   042507   020104
 9816   067200   043101   042524   020122
 9817   067206   042522   042101   047111
 9818   067214   020107   046101   020114
 9819   067222   042522   051507      000
 9820   067227      103   031123   041440  EM1015: .ASCIZ  /CS2 CHANGED AFTER READING ALL REGS/
 9821   067234   040510   043516   042105
 9822   067242   040440   052106   051105
 9823   067250   051040   040505   044504
 9824   067256   043516   040440   046114
 9825   067264   051040   043505   000123
 9826   067272   054503   020114   042101  EM1016: .ASCIZ  /CYL ADD INCORRECT/
 9827   067300   020104   047111   047503
 9828   067306   051122   041505   000124
 9829   067314   051503   020061   040527  EM1017: .ASCIZ  /CS1 WAS MODIFIED/
 9830   067322   020123   047515   044504
 9831   067330   044506   042105      000
 9832   067335      127   051117   020104  EM1018: .ASCIZ  /WORD COUNT WAS MODIFIED/
 9833   067342   047503   047125   020124
 9834   067350   040527   020123   047515
```

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 9835  067356  044504  044506  042105
 9836  067364     000
 9837  067365     102  051525  040440  EM1019: .ASCIZ  /BUS ADD WAS MODIFIED/
 9838  067372  042104  053440  051501
 9839  067400  046440  042117  043111
 9840  067406  042511  000104
 9841  067412  044504  045523  040440  EM1020: .ASCIZ  /DISK ADDRESS REG WAS MODIFIED/
 9842  067420  042104  042522  051523
 9843  067426  051040  043505  053440
 9844  067434  051501  046440  042117
 9845  067442  043111  042511  000104
 9846  067450  051503  020062  040527  EM1021: .ASCIZ  /CS2 WAS MODIFIED/
 9847  067456  020123  047515  044504
 9848  067464  044506  042105     000
 9849  067471     104  044522  042526  EM1022: .ASCIZ  /DRIVE STATUS REG WAS MODIFIED/
 9850  067476  051440  040524  052524
 9851  067504  020123  042522  020107
 9852  067512  040527  020123  047515
 9853  067520  044504  044506  042105
 9854  067526     000
 9855  067527     105  051122  051117  EM1023: .ASCIZ  /ERROR REG WAS MODIFIED/
 9856  067534  051040  043505  053440
 9857  067542  051501  046440  042117
 9858  067550  043111  042511  000104
 9859  067556  052101  042524  052116  EM1024: .ASCIZ  "ATTENTION SUMMARY/OFFSET WAS MODIFIED"
 9860  067564  047511  020116  052523
 9861  067572  046515  051101  027531
 9862  067600  043117  051506  052105
 9863  067606  053440  051501  046440
 9864  067614  042117  043111  042511
 9865  067622  000104
 9866  067624  054503  020114  042101  EM1025: .ASCIZ  /CYL ADD WAS MODIFIED/
 9867  067632  020104  040527  020123
 9868  067640  047515  044504  044506
 9869  067646  042105     000
 9870  067651     115  044501  052116  EM1026: .ASCIZ  /MAINT REG 1 WAS MODIFIED/
 9871  067656  051040  043505  030440
 9872  067664  053440  051501  046440
 9873  067672  042117  043111  042511
 9874  067700  000104
 9875  067702  041505  020103  047520  EM1029: .ASCIZ  /ECC POS WAS MODIFIED/
 9876  067710  020123  040527  020123
 9877  067716  047515  044504  044506
 9878  067724  042105     000
 9879  067727     105  041503  050040  EM1030: .ASCIZ  /ECC PAT WAS MODIFIED/
 9880  067734  052101  053440  051501
 9881  067742  046440  042117  043111
 9882  067750  042511  000104
 9883                                  .EVEN
 9884  067754  000400                  SAVVEC: .BLKW   400              ;STORAGE FOR TRAP CATCHER
 9885  070754     100     100          SILO:   .BYTE   100,100         ;CONFIGURATIONION FOR SILO TEST
 9886  070756     101     101                  .BYTE   101,101
 9887  070760     102     102                  .BYTE   102,102
 9888  070762     103     103                  .BYTE   103,103
 9889  070764     104     104                  .BYTE   104,104
 9890  070766     105     105                  .BYTE   105,105
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 9891  070770      106      106                    .BYTE   106,106
 9892  070772      107      107                    .BYTE   107,107
 9893  070774      110      110                    .BYTE   110,110
 9894  070776      111      111                    .BYTE   111,111
 9895  071000      112      112                    .BYTE   112,112
 9896  071002      113      113                    .BYTE   113,113
 9897  071004      114      114                    .BYTE   114,114
 9898  071006      115      115                    .BYTE   115,115
 9899  071010      116      116                    .BYTE   116,116
 9900  071012      117      117                    .BYTE   117,117
 9901  071014      120      120                    .BYTE   120,120
 9902  071016      121      121                    .BYTE   121,121
 9903  071020      122      122                    .BYTE   122,122
 9904  071022      123      123                    .BYTE   123,123
 9905  071024      124      124                    .BYTE   124,124
 9906  071026      125      125                    .BYTE   125,125
 9907  071030      126      126                    .BYTE   126,126
 9908  071032      127      127                    .BYTE   127,127
 9909  071034      130      130                    .BYTE   130,130
 9910  071036      131      131                    .BYTE   131,131
 9911  071040      132      132                    .BYTE   132,132
 9912  071042      133      133                    .BYTE   133,133
 9913  071044      134      134                    .BYTE   134,134
 9914  071046      135      135                    .BYTE   135,135
 9915  071050      136      136                    .BYTE   136,136
 9916  071052      137      137                    .BYTE   137,137
 9917  071054      140      140                    .BYTE   140,140
 9918  071056      141      141                    .BYTE   141,141
 9919  071060      142      142                    .BYTE   142,142
 9920  071062      143      143                    .BYTE   143,143
 9921  071064      144      144                    .BYTE   144,144
 9922  071066      145      145                    .BYTE   145,145
 9923  071070      146      146                    .BYTE   146,146
 9924  071072      147      147                    .BYTE   147,147
 9925  071074      150      150                    .BYTE   150,150
 9926  071076      151      151                    .BYTE   151,151
 9927  071100      152      152                    .BYTE   152,152
 9928  071102      153      153                    .BYTE   153,153
 9929  071104      154      154                    .BYTE   154,154
 9930  071106      155      155                    .BYTE   155,155
 9931  071110      156      156                    .BYTE   156,156
 9932  071112      157      157                    .BYTE   157,157
 9933  071114      160      160                    .BYTE   160,160
 9934  071116      161      161                    .BYTE   161,161
 9935  071120      162      162                    .BYTE   162,162
 9936  071122      163      163                    .BYTE   163,163
 9937  071124      164      164                    .BYTE   164,164
 9938  071126      165      165                    .BYTE   165,165
 9939  071130      166      166                    .BYTE   166,166
 9940  071132      167      167                    .BYTE   167,167
 9941  071134      170      170                    .BYTE   170,170
 9942  071136      171      171                    .BYTE   171,171
 9943  071140      172      172                    .BYTE   172,172
 9944  071142      173      173                    .BYTE   173,173
 9945  071144      174      174                    .BYTE   174,174
 9946  071146      175      175                    .BYTE   175,175
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 9947  071150      176      176                    .BYTE   176,176
 9948  071152      177      177                    .BYTE   177,177
 9949  071154      200      200                    .BYTE   200,200
 9950  071156      201      201                    .BYTE   201,201
 9951              000001                  .END
```

```
ABASE = 177440            1066#   1301    1342
ABORT   062164            8634    9343#
ACDW1 = 000000            1301    1344
ACDW2 = 000000            1301    1345
ACLO  = 000010            1161#
ACPUOP= 000000            1301    1316
ADDW0 = 000000            1301
ADDW1 = 000000            1301
ADDW10= 000000            1301
ADDW11= 000000            1301
ADDW12= 000000            1301
ADDW13= 000000            1301
ADDW14= 000000            1301
ADDW15= 000000            1301
ADDW2 = 000000            1301
ADDW3 = 000000            1301
ADDW4 = 000000            1301
ADDW5 = 000000            1301
ADDW6 = 000000            1301
ADDW7 = 000000            1301
ADDW8 = 000000            1301
ADDW9 = 000000            1301
ADEVCT= 000000            1301    1307
ADEVM = 000000            1301    1343
AENV  = 000000            1301    1312
AENVM = 000000            1301    1313
AFATAL= 000000            1301    1304
AMADR1= 000000            1301    1329
AMADR2= 000000            1301    1333
AMADR3= 000000            1301    1336
AMADR4= 000000            1301    1339
AMAMS1= 000000            1301    1323
AMAMS2= 000000            1301    1331
AMAMS3= 000000            1301    1334
AMAMS4= 000000            1301    1337
AMSGAD= 000000            1301    1309
AMSGLG= 000000            1301    1310
AMSGTY= 000000            1301    1303
AMTYP1= 000000            1301    1324
AMTYP2= 000000            1301    1332
AMTYP3= 000000            1301    1335
AMTYP4= 000000            1301    1338
APASS = 000000            1301    1306
APRIOR= 000005            1065#   1301
APTCSU= 000040            8511#   8673
APTENV= 000001            8467    8509#   8543    8666
APTSIZ= 000200            1639    8508#
APTSPO= 000100            8469    8510#   8668
ASWREG= 000000            1301    1314
ATESTN= 000000            1301    1305
AUNIT = 000000            1301    1308
AUSWR = 000000            1301    1315
AVECT1= 120210            1064#   1301    1340
AVECT2= 000000            1301    1341
BAI   = 000020            1124#
BA16  = 000400            1109#
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BA17   = 001000            1110#
BIT0   = 000001            1046#  1106   1139   1158
BIT00  = 000001            1036#  1046
BIT01  = 000002            1035#  1045
BIT02  = 000004            1034#  1044
BIT03  = 000010            1033#  1043
BIT04  = 000020            1032#  1042
BIT05  = 000040            1031#  1041
BIT06  = 000100            1030#  1040
BIT07  = 000200            1029#  1039
BIT08  = 000400            1028#  1038   8338
BIT09  = 001000            1027#  1037   8356   8554
BIT1   = 000002            1045#  1140
BIT10  = 002000            1026#  1111   1130   1149   1182   1197   8531
BIT11  = 004000            1025#  1112   1131   1150   1167   1183   1198   8363
BIT12  = 010000            1024#  1114   1132   1151   1184
BIT13  = 020000            1023#  1115   1133   1152   1168   1185   8538
BIT14  = 040000            1022#  1116   1134   1153   1169   1186   8324
BIT15  = 100000            1021#  1117   1118   1135   1154   1170   1187
BIT2   = 000004            1044#  1141   1160
BIT3   = 000010            1043#  1123   1142   1161
BIT4   = 000020            1042#  1124   1143   1162   1176   1191
BIT5   = 000040            1041#  1125   1144   1163   1177   1192
BIT6   = 000100            1040#  1107   1126   1145   1164   1178   1193
BIT7   = 000200            1039#  1108   1127   1146   1165   1179   1194
BIT8   = 000400            1038#  1109   1128   1147   1166   1180   1195
BIT9   = 001000            1037#  1110   1129   1148   1181   1196
BPTVEC= 000014             1053#
BSE    = 000200            1146#
CCLR   = 100000            1118#  1874   1966   2051   2053   2082   2152   2181   2253   2297   2383   2421   2507
                           2545   2631   2669   2755   2794   2885   2897   2926   3017   3029   3058   3149   3161
                           3190   3281   3293   3313   3403   3487   3522   3606   3641   3725   3760   3844   3881
                           3967   4003   4089   4125   4211   4247   4333   4369   4455   4491   4577   4613   4699
                           4735   4821   4858   4944   4983   5069   5108   5194   5233   5319   5348   5440   5525
                           5609   5693   5783   5869   5903   5989   6023   6109   6143   6229   6263   6350   6389
                           6475   6513   6600   6638   6725   6758   6843   6945   7257   7290   7292   7327   7341
                           7375   7483   7515   7631   7747   7863   7963   8045   8058   8074   8101   8135   8154
                           8156   8191   8221
CDT    = 002000            1111#
CERR   = 100000            1117#  7332   7472   8036   8067
CFMT   = 010000            1114#  2874   3006   3138   3270
CHKPAR  055264             1726   1781   2034   8278#  9154
CKSWR  = 104407            8323   8527   8553   9200#
CLEAR  = 000005            1091#
COE    = 001000            1148#
CONFG1  002012             1577#  2792*  2895*  2896   2924*  3027*  3028   3056*  3159*  3160   3188*  3291*  3292
                           4856*  4954*  4955   4981*  5079*  5080   5106*  5204*  5205   5231*  5329*  5330
CONFIG  002010             1576#  1964*  2076*  2083   2085   2087   2154   2157   2162   2164*  2179*  2295*  2303
                           2305   2393*  2419*  2427   2429   2517*  2543*  2551   2553   2641*  2667*  2675   2677
                           2765*  2791*  2800   2802   2874   2896*  2897*  2923*  2932   2934   3006   3028*  3029*
                           3055*  3064   3066   3138   3160*  3161*  3187*  3196   3198   3270   3292*  3293*  3311*
                           3401*  3408   3410   3489   3492   3498*  3520*  3527   3529   3608   3611   3617*  3639*
                           3646   3648   3727   3730   3736*  3758*  3765   3767   3846   3849   3855*  3879*  3887
                           3889   3977*  4001*  4009   4011   4099*  4123*  4131   4133   4221*  4245*  4253   4255
                           4343*  4367*  4375   4377   4465*  4489*  4497   4499   4587*  4611*  4619   4621   4709*
                           4733*  4741   4743   4831*  4855*  4864   4866   4955*  4956*  4980*  4989   4991   5080*
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                    5081*  5105*  5114   5116   5205*  5206*  5230*  5239   5241   5330*  5331*  5438*  5523*
                    5607*  5691*  5781*  5789   5791   5879*  5901*  5909   5911   5999*  6021*  6029   6031
                    6119*  6141*  6149   6151   6239*  6261*  6269   6271   6364*  6386*  6394   6396   6489*
                    6511*  6519   6521   6614*  6636*  6644   6646   6739*  6756*  6841*  7377*  7509*  7517
                    7589   7591   7596*  7625*  7633   7705   7707   7712*  7741*  7749   7821   7823   7828*
                    7857*  7665   7937   7939   7944*  9213
CR     = 000015      961#  8712   8722
CRLF   = 000200      962#  1664   8683   8722
CTO    = 004000     1112#  2803   2935   3067   3199
DCK    = 100000     1154#
DDISP  = 177570      968#  1274   1627
DDT    = 000400     1166#
DF000    061556     1528   9231#
DF001    061562     1367   9233#
DF002    061602     1372   9241#
DF003    061626     1377   9251#
DF004    061652     1382   9261#
DF005    061676     1387   1422   1427   1500   1505   1511   1517   9271#
DF006    061712     1392   1397   1402   1523   9277#
DF011    061736     1407   1412   1417   9287#
DF016    061756     1432   1437   1442   1447   1453   1459   1490   1495   9295#
DF024    062002     1464   1469   9305#
DF026    062026     1475   1480   1485   9315#
DH000A   062251     1521   9235   9243   9253   9263   9273   9279   9289   9297   9307   9317   9354#
DH000B   062267     9237   9245   9255   9265   9275   9281   9291   9299   9309   9319   9357#
DH000C   062302     1526   9359#
DH001    062332     9239   9364#
DH002A   062351     9247   9367#
DH002B   062370     9249   9370#
DH003A   062406     9257   9373#
DH003B   062435     9259   9377#
DH004A   062463     9267   9381#
DH004B   062512     9269   9385#
DH006A   062540     9283   9301   9389#
DH006B   062557     9285   9392#
DH011    062576     9293   9395#
DH016A   062621     9399#
DH016B   062660     9303   9405#
DH024A   062716     9311   9410#
DH024B   062763     9313   9417#
DH026A   063030     9321   9424#
DH026B   063117     9323   9434#
DI     = 040000     1116#  2803   2935   3067   3199
DISPLA   001142     1274#  1627*  1635*  8378*  8530*
DISPRE   000174     1206#  1635
DLT    = 100000     1135#  4867   4992   5117   5242   7331   7473   8035   8066
DMD    = 000040     1177#
DRA    = 000001     1158#
DRDY   = 000200     1165#
DROT   = 000040     1163#
DRPAR  = 000010     1142#
DRVMSK = 000007     1122#
DSC    = 040000     1169#
DSWR   = 177570      967#  1273   1626
DTE    = 010000     1151#
DTYE   = 000040     1144#
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DT000   061412          1527    9209#
DT001   061416          1366    9210#
DT002   061424          1371    9211#
DT003   061434          1376    9213#
DT004   061446          1381    9215#
DT005   061460          1386    1421    1426    1499    1504    1510    1516    9217#
DT006   061464          1391    1396    1401    1522    9218#
DT011   061474          1406    1411    1416    9220#
DT016   061502          1431    1436    1441    1446    1452    1458    1489    1494    9221#
DT024   061516          1463    1468    9223#
DT026   061534          1473    1479    1484    9226#
ECCW  = 020000          1185#   1826    1828    1831    1919    1921    1924    2013    2015    2134    2136    2235    2237
                        2363    2365    2487    2489    2611    2613    2735    2737    2860    2862    2992    2994    3124
                        3126    3256    3258    3365    3367    3467    3469    3586    3588    3705    3707    3824    3826
                        3947    3949    4069    4071    4191    4193    4313    4315    4435    4437    4557    4559    4679
                        4681    4801    4803    4924    4926    5049    5051    5174    5176    5299    5301    5408    5410
                        5492    5494    5577    5579    5661    5663    5745    5747    5849    5851    5969    5971    6089
                        6091    6209    6211    6272    6274    6276    6353    6355    6397    6399    6401    6478    6480
                        6522    6524    6526    6603    6605    6647    6649    6651    6728    6730    6810    6812    6895
                        6897    7431    7433    7570    7572    7686    7688    7802    7804    7918    7920
ECH   = 000100          1145#
EMTVEC= 000030          1056#   1610*   1611*
EM000   063204          1525    9445#
EM1     063251          1364    9452#
EM10    064015          5439    9517#
EM1000  066574          1435    1440    1451    1462    1472    1493    1786    1879    2807    2891    2939    3023    3071
                        3155    3203    3287    9767#
EM1001  066612          2088    3413    3532    3651    3770    5373    9770#
EM1002  066637          1791    1884    1972    2038    2059    2309    2389    2433    2513    2557    2637    2681    2761
                        5358    5367    9774#
EM1003  066661          1796    1889    2189    2258    3893    3973    4015    4095    4137    4217    4259    4339    5378
                        9778#
EM1004  066704          1445    1457    1467    1478    1488    1807    1900    4871    4950    4996    5075    5121    5200
                        5246    5325    5389    7412    7551    7667    7783    7899    9782#
EM1005  066722          1812    1905    5394    9785#
EM1006  066755          1817    1910    5399    9790#
EM1007  067001          1801    1894    4381    4461    4503    4583    4625    4705    4747    4827    5383    9794#
EM1008  067044          1483    7441    7455    7592    7708    7824    7940    9800#
EM1009  067072          1430    1832    1925    5413    6280    6360    6405    6485    6530    6610    6655    6735    9804#
EM1012  067120          1843    1936    5424    9808#
EM1013  067142          1837    1930    5418    9811#
EM1014  067164          1849    1942    9814#
EM1015  067227          1855    1948    9820#
EM1016  067272          1822    1915    5404    5795    5875    5915    5995    6035    6115    6155    6235    9826#
EM1017  067314          1978    2094    2195    2316    2440    2564    2688    3320    3420    3539    3658    3777    3900
                        4022    4144    4266    4388    4510    4632    4754    4878    5003    5128    5253    5447    5532
                        5616    5700    5802    5922    6042    6162    6287    6412    6537    6662    6765    6850    7383
                        7522    7638    7754    7870    9829#
EM1018  067335          2159    2205    2322    2446    2570    2694    2819    2951    3083    3215    3330    3494    3613
                        3732    3851    3912    4034    4156    4278    4400    4522    4644    4766    4890    5015    5140
                        5265    5457    5542    5626    5710    5814    5934    6054    6174    6299    6424    6549    6674
                        6775    6860    7393    7532    7648    7764    7880    9832#
EM1019  067365          2099    2200    2813    2945    3077    3209    3325    3426    3545    3664    3783    3906    4028
                        4150    4272    4394    4516    4638    4760    4884    5009    5134    5259    5452    5537    5621
                        5705    5808    5928    6048    6168    6293    6418    6543    6668    6770    6855    7388    7527
                        7643    7759    7875    9837#
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CROSS REFERENCE TABLE -- USER SYMBOLS

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EM1020  067412          1983  2104  2328  2452  2576  2700  2825  2957  3089  3221  3335  3432  3551
                        3670  3789  4406  4528  4650  4772  4896  5021  5146  5271  5462  5547  5631
                        5715  5820  5940  6060  6180  6305  6430  6555  6680  6780  6865  7398  7537
                        7653  7769  7885  9841#
EM1021  067450          1994  2115  2216  2341  2465  2589  2713  2838  2970  3102  3234  3346  3445
                        3564  3683  3802  3925  4047  4169  4291  4413  4535  4657  4779  5473  5558
                        5642  5726  5833  5953  6073  6193  6318  6443  6568  6693  6791  6876  9846#
EM1022  067471          1999  2120  2221  2347  2471  2595  2719  2844  2976  3108  3240  3351  3451
                        3570  3689  3808  3931  4053  4175  4297  4419  4541  4663  4785  4908  5033
                        5158  5283  5478  5563  5647  5731  5839  5959  6079  6199  6324  6449  6574
                        6699  6796  6881  7417  7556  7672  7788  7904  9849#
EM1023  067527          2004  2125  2226  2352  2476  2600  2724  2849  2981  3113  3245  3356  3456
                        3575  3694  3813  3936  4058  4180  4302  4424  4546  4668  4790  4913  5038
                        5163  5288  5483  5568  5652  5736  5844  5964  6084  6204  6329  6454  6579
                        6704  6801  6886  7422  7561  7677  7793  7909  9855#
EM1024  067556          1988  2109  2210  2334  2458  2582  2706  2831  2963  3095  3227  3340  3438
                        3557  3676  3795  3918  4040  4162  4284  4902  5027  5152  5277  5467  5552
                        5636  5720  5826  5946  6066  6186  6311  6436  6561  6686  6785  6870  7542
                        7658  7774  7890  9859#
EM1025  067624          2009  2130  2231  2358  2482  2606  2730  2855  2987  3119  3251  3361  3462
                        3581  3700  3819  3942  4064  4186  4308  4430  4552  4674  4796  4919  5044
                        5169  5294  5488  5573  5657  5741  6335  6460  6585  6710  6806  6891  7427
                        7566  7682  7798  7914  9866#
EM1026  067651          2018  2139  2240  2368  2492  2616  2740  2865  2997  3129  3261  3370  3472
                        3591  3710  3829  3952  4074  4196  4318  4440  4562  4684  4806  4929  5054
                        5179  5304  5497  5582  5666  5750  5854  5974  6094  6214  6815  6900  7436
                        7575  7691  7807  7923  9870#
EM1029  067702          2029  2150  2251  2380  2504  2628  2752  2882  3014  3146  3278  3381  3484
                        3603  3722  3841  3964  4086  4208  4330  4452  4574  4696  4818  4941  5066
                        5191  5316  5508  5593  5677  5761  5866  5986  6106  6226  6347  6472  6597
                        6722  6826  6911  7403  7447  7586  7702  7818  7934  9875#
EM1030  067727          2023  2144  2245  2374  2498  2622  2746  2871  3003  3135  3267  3375  3478
                        3597  3716  3835  3958  4080  4202  4324  4446  4568  4690  4812  4935  5060
                        5185  5310  5502  5587  5671  5755  5860  5980  6100  6220  6341  6466  6591
                        6716  6820  6905  7580  7696  7812  7928  9879#
EM11    064062          5524  9524#
EM12    064120          5608  9529#
EM13    064160          5692  9535#
EM14    064220          6757  9541#
EM15    064260          6842  9547#
EM16    064321          2793  2925  3057  3189  9553#
EM17    064351          4368  4490  4612  4734  9558#
EM18    064426          4857  4982  5107  5232  9566#
EM19    064456          5782  5902  6022  6142  9570#
EM2     063326          1779  9460#
EM2N    001310          1369#  1779*  1786*  1791*  1796*  1801*  1807*  1812*  1817*  1822*  1832*  1837*  1843*
                        1849*  1855*  1873*  1879*  1884*  1889*  1894*  1900*  1905*  1910*  1915*  1925*  1930*
                        1936*  1942*  1948*  2158*  2159*  3493*  3494*  3612*  3613*  3731*  3732*  3850*  3851*
                        5369*  5373*  5378*  5383*  5389*  5394*  5399*  5404*  5413*  5418*  5424*
EM20    064517          6262  6387  6512  6637  9576#
EM21    064557          5357  9582#
EM22    064634          5366  9590#
EM23    064705          5369  9597#
EM24    064766          1384  9606#
EM25    065060          1389  9616#
EM26    065140          1394  9624#
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CROSS REFERENCE TABLE -- USER SYMBOLS

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EM27    065176          1399    9629#
EM28    065232          1404    9634#
EM29    065314          1409    1492    9643#
EM3     063403          1873    2158    2257    2388    2512    2636    2760    2890    3022    3154    3286    3493    3612
                        3731    3850    3972    4094    4216    4338    4460    4582    4704    4826    4949    5074    5199
                        5324    5874    5994    6114    6234    6359    6484    6609    6734    9468#
EM3N    001320          1374#   1965*   1972*   1978*   1983*   1988*   1994*   1999*   2004*   2009*   2018*   2023*   2029*
                        2077*   2088*   2094*   2099*   2104*   2109*   2115*   2120*   2125*   2130*   2139*   2144*   2150*
                        2180*   2189*   2195*   2200*   2205*   2210*   2216*   2221*   2226*   2231*   2240*   2245*   2251*
                        2296*   2309*   2316*   2322*   2328*   2334*   2341*   2347*   2352*   2358*   2368*   2374*   2380*
                        2420*   2433*   2440*   2446*   2452*   2458*   2465*   2471*   2476*   2482*   2492*   2498*   2504*
                        2544*   2557*   2564*   2570*   2576*   2582*   2589*   2595*   2600*   2606*   2616*   2622*   2628*
                        2668*   2681*   2688*   2694*   2700*   2706*   2713*   2719*   2724*   2730*   2740*   2746*   2752*
                        2793*   2807*   2813*   2819*   2825*   2831*   2838*   2844*   2849*   2855*   2865*   2871*   2882*
                        2925*   2939*   2945*   2951*   2957*   2963*   2970*   2976*   2981*   2987*   2997*   3003*   3014*
                        3057*   3071*   3077*   3083*   3089*   3095*   3102*   3108*   3113*   3119*   3129*   3135*   3146*
                        3189*   3203*   3209*   3215*   3221*   3227*   3234*   3240*   3245*   3251*   3261*   3267*   3278*
                        3312*   3320*   3325*   3330*   3335*   3340*   3346*   3351*   3356*   3361*   3370*   3375*   3381*
                        3402*   3413*   3420*   3426*   3432*   3438*   3445*   3451*   3456*   3462*   3472*   3478*   3484*
                        3521*   3532*   3539*   3545*   3551*   3557*   3564*   3570*   3575*   3581*   3591*   3597*   3603*
                        3640*   3651*   3658*   3664*   3670*   3676*   3683*   3689*   3694*   3700*   3710*   3716*   3722*
                        3759*   3770*   3777*   3783*   3789*   3795*   3802*   3808*   3813*   3819*   3829*   3835*   3841*
                        3880*   3893*   3900*   3906*   3912*   3918*   3925*   3931*   3936*   3942*   3952*   3958*   3964*
                        4002*   4015*   4022*   4028*   4034*   4040*   4047*   4053*   4058*   4064*   4074*   4080*   4086*
                        4124*   4137*   4144*   4150*   4156*   4162*   4169*   4175*   4180*   4186*   4196*   4202*   4208*
                        4246*   4259*   4266*   4272*   4278*   4284*   4291*   4297*   4302*   4308*   4318*   4324*   4330*
                        4368*   4381*   4388*   4394*   4400*   4406*   4413*   4419*   4424*   4430*   4440*   4446*   4452*
                        4490*   4503*   4510*   4516*   4522*   4528*   4535*   4541*   4546*   4552*   4562*   4568*   4574*
                        4612*   4625*   4632*   4638*   4644*   4650*   4657*   4663*   4668*   4674*   4684*   4690*   4696*
                        4734*   4747*   4754*   4760*   4766*   4772*   4779*   4785*   4790*   4796*   4806*   4812*   4818*
                        4857*   4871*   4878*   4884*   4890*   4896*   4902*   4908*   4913*   4919*   4929*   4935*   4941*
                        4982*   4996*   5003*   5009*   5015*   5021*   5027*   5033*   5038*   5044*   5054*   5060*   5066*
                        5107*   5121*   5128*   5134*   5140*   5146*   5152*   5158*   5163*   5169*   5179*   5185*   5191*
                        5232*   5246*   5253*   5259*   5265*   5271*   5277*   5283*   5288*   5294*   5304*   5310*   5316*
                        5439*   5447*   5452*   5457*   5462*   5467*   5473*   5478*   5483*   5488*   5497*   5502*   5508*
                        5524*   5532*   5537*   5542*   5547*   5552*   5558*   5563*   5568*   5573*   5582*   5587*   5593*
                        5608*   5616*   5621*   5626*   5631*   5636*   5642*   5647*   5652*   5657*   5666*   5671*   5677*
                        5692*   5700*   5705*   5710*   5715*   5720*   5726*   5731*   5736*   5741*   5750*   5755*   5761*
                        5782*   5795*   5802*   5808*   5814*   5820*   5826*   5833*   5839*   5844*   5854*   5860*   5866*
                        5902*   5915*   5922*   5928*   5934*   5940*   5946*   5953*   5959*   5964*   5974*   5980*   5986*
                        6022*   6035*   6042*   6048*   6054*   6060*   6066*   6073*   6079*   6084*   6094*   6100*   6106*
                        6142*   6155*   6162*   6168*   6174*   6180*   6186*   6193*   6199*   6204*   6214*   6220*   6226*
                        6262*   6280*   6287*   6293*   6299*   6305*   6311*   6318*   6324*   6329*   6335*   6341*   6347*
                        6387*   6405*   6412*   6418*   6424*   6430*   6436*   6443*   6449*   6454*   6460*   6466*   6472*
                        6512*   6530*   6537*   6543*   6549*   6555*   6561*   6568*   6574*   6579*   6585*   6591*   6597*
                        6637*   6655*   6662*   6668*   6674*   6680*   6686*   6693*   6699*   6704*   6710*   6716*   6722*
                        6757*   6765*   6770*   6775*   6780*   6785*   6791*   6796*   6801*   6806*   6815*   6820*   6826*
                        6842*   6850*   6855*   6860*   6865*   6870*   6876*   6881*   6886*   6891*   6900*   6905*   6911*
                        7383*   7388*   7393*   7398*   7403*   7412*   7417*   7422*   7427*   7436*   7441*   7447*   7455*
                        7508*   7522*   7527*   7532*   7537*   7542*   7551*   7556*   7561*   7566*   7575*   7580*   7586*
                        7592*   7624*   7638*   7643*   7648*   7653*   7658*   7667*   7672*   7677*   7682*   7691*   7696*
                        7702*   7708*   7740*   7754*   7759*   7764*   7769*   7774*   7783*   7788*   7793*   7798*   7807*
                        7812*   7818*   7824*   7856*   7870*   7875*   7880*   7885*   7890*   7899*   7904*   7909*   7914*
                        7923*   7928*   7934*   7940*
EM30    065373          1414    9651#
EM31    065444          1419    9658#
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EM32    065515          1424  9665#
EM33    065565          7508  7624    7740    7856    9672#
EM34    065632          1429  1434    9679#
EM35    065675          1439  1444    9685#
EM36    065733          1450  1456    9691#
EM37    066007          1461  1466    9699#
EM38    066037          1471  1477    1482    9704#
EM39    066067          1487  9709#
EM4     063465          1965  2296    2420    2544    2668    9477#
EM4N    001330          1379# 2032*   2038*   2058*   2059*   2257*   2258*   2388*   2389*   2512*   2513*   2636*   2637*
                        2760* 2761*   2890*   2891*   3022*   3023*   3154*   3155*   3286*   3287*   3972*   3973*   4094*
                        4095* 4216*   4217*   4338*   4339*   4460*   4461*   4582*   4583*   4704*   4705*   4826*   4827*
                        4949* 4950*   5074*   5075*   5199*   5200*   5324*   5325*   5357*   5358*   5366*   5367*   5874*
                        5875* 5994*   5995*   6114*   6115*   6234*   6235*   6359*   6360*   6484*   6485*   6609*   6610*
                        6734* 6735*
EM40    066137          1497  9716#
EM41    066205          1502  9723#
EM42    066267          1508  9732#
EM43    066374          1514  9744#
EM44    066460          1520  9753#
EM5     063521          2032  9482#
EM6     063600          2058  9490#
EM7     063663          2077  3402    3521    3640    3759    9500#
EM8     063722          2180  3880    4002    4124    4246    9506#
EM9     063757          3312  9511#
ERRCNT  002006          1575# 1643*   8629*   8632
ERRVEC= 000004          1049# 1624    1625*   1636*   1744*   1745*   1756*   1757*   8278*   8279*   8291*   8292*   8329
                        8330* 8332*   8335*
E.ASOF  001756          1557#
E.BA    001744          1552#
E.CS1   001740          1550# 7332*   7337    7344*   7346    7459*   7461    7472*   7479    7972*   7974    7984    7997
                        8016  8036*   8041    8067*   8071    8077*   8079    9221    9223    9226
E.CS2   001750          1554# 7331*   7333    7345*   7350    7460*   7465    7473*   7474    7973*   7977    7987    7996*
                        8000  8005*   8019    8029*   8035*   8037    8066*   8068    8078*   8083    9221    9223    9226
E.DA    001746          1553#
E.DB    001762          1559#
E.DCYL  001760          1558#
E.DS    001752          1555#
E.ECPS  001772          1563#
E.ECPT  001774          1564#
E.ER    001754          1556#
E.MR1   001764          1560#
E.MR2   001766          1561#
E.MR3   001770          1562#
E.SPAR  001776          1565#
E.WC    001742          1551#
FMTE  = 000020          1143#
GNS   = ****** U        1205  1663    8249    8256    9192    9193    9194    9195    9196    9198    9200    9201    9202
                        9203  9204    9205    9206
GO    = 000001          1106# 2897    3029    3161    3293
GTSWR = 104406          1658  9198#
HT    = 000011           959# 8681    8722
HVRC  = 000400          1147#
IDAE  = 002000          1149#
IE    = 000100          1107# 6954    7194    7217    7266    7291    7293    8110    8160    8203
ILF   = 000001          1139#
```

```
INTR   = 000300          1102#
IOTVEC= 000020          1054#  1608*  1609*
IR     = 000100          1126#  1804   1806   1852   1854   1897   1899   1945   1947   1991   1993   2112   2114
                         2213   2215   2315   2338   2340   2439   2462   2464   2563   2586   2588   2687   2710
                         2712   2835   2837   2967   2969   3099   3101   3231   3233   3343   3345   3419   3442
                         3444   3538   3561   3563   3657   3680   3682   3776   3799   3801   3899   3922   3924
                         4021   4044   4046   4143   4166   4168   4265   4288   4290   4387   4410   4412   4509
                         4532   4534   4631   4654   4656   4753   4776   4778   4868   4877   4946   4993   5002
                         5071   5118   5127   5196   5243   5252   5321   5386   5388   5470   5472   5555   5557
                         5639   5641   5723   5725   5801   5830   5832   5921   5950   5952   6041   6070   6072
                         6161   6190   6192   6286   6315   6317   6411   6440   6442   6536   6565   6567   6661
                         6690   6692   6788   6790   6873   6875   7331   7345   7409   7411   7460   7473   7548
                         7550   7664   7666   7780   7782   7896   7898   7973   8005   8029   8035   8078
LF     = 000012           960#  8716   8722
MCLK   = 000400          1180#
MDS    = 001000          1129#  4867   4992   5117   5242
MEMBAS= 172100          1062#  8280
MEMERR  055354          8284   8297#
MEMVEC= 000114          1061#  8284*  8285*
MERD   = 001000          1181#
MESMSK= 000017          1174#
MEWD   = 002000          1182#  1825   1831   1918   1924   2012   2133   2234   2362   2486   2610   2734   2859
                         2991   3123   3255   3364   3466   3585   3704   3823   3946   4068   4190   4312   4434
                         4556   4678   4800   4923   5048   5173   5298   5407   5491   5576   5660   5744   5848
                         5968   6088   6208   6273   6352   6398   6477   6523   6602   6648   6727   6809   6894
                         7430   7569   7685   7801   7917
MIND   = 000200          1179#
MSP    = 000100          1178#
NED    = 010000          1132#  4867   4992   5117   5242
NEM    = 004000          1131#  4867   4992   5117   5242
NEWPAS  003040          1717   1726#  8272
NXF    = 000004          1141#
OFFSET= 000015          1095#
OFST   = 000004          1160#
OPI    = 020000          1152#
OPR001  062052          1667   9327#
OPR002  062101          1670   1681   1698   9331#
OPR003  062107          1677   9333#
OPR004  062137          1689   9338#
OR     = 000200          1127#  4867   4992   5117   5242   7409   7411   7548   7550   7664   7666   7780   7782
                         7896   7898   7973   7996   8005   8066
PACK   = 000003          1090#
PARM    002030          1212   1586#
PAR.EN= 000001          1063#  8283
PAT    = 000020          1176#
PCA    = 004000          1183#  6272   6397   6522   6647
PCD    = 010000          1184#  6272   6397   6522   6647
PGE    = 002000          1130#  4867   4992   5117   5242
PIP    = 020000          1168#
PIRQ   = 177772           966#
PIRQVE= 000240          1060#
PREREG  002014          1578#  2031*  2056*  2259*  2382*  2506*  2630*  2754*  2884*  3016*  3148*  3280*  3486*
                         3605*  3724*  3843*  3966*  4088*  4210*  4332*  4454*  4576*  4698*  4820*  4943*  5068*
                         5193*  5318*  5355*  5364*  5868*  5988*  6108*  6228*  6349*  6474*  6599*  6724*  9215
PRIOR   002020          1580#  7190*  7207*  7208*  7209*  7210*  7211*  7212*  7219*  9220
PRO    = 000000           983#
```

```
PR1    = 000040            984#
PR2    = 000100            985#
PR3    = 000140            986#
PR4    = 000200            987#
PR5    = 000240            988#  1570
PR6    = 000300            989#
PR7    = 000340            990#  1595  1728  1745  6941  6956  7136  7196  7227  7260  7268  7296  7303
                          8104  8113  8128  8159  8194  8205  8279  8285  9138  9151
PS     = 177776            963#   964
PSW    = 177776            964#
PWRVEC= 000024            1055#  1614* 1615* 9137* 9138* 9150* 9151*
RDCHR  = 104410           8980   9201#
RDDATA= 000021            1097#
RDGATE= 100000            1187#  6272  6397  6522  6647
RDHEAD= 000025            1099#
RDLIN  = 104411           9052   9202#
RDOCT  = 104412           1671   1682  1699  9203#
RDY    = 000200           1108#  1783  1785  1846  1848  1876  1878  1939  1941  1975  1977  2091  2093
                          2192   2194  2313  2437  2561  2685  2804  2887  2936  3019  3068  3151  3200
                          3283   3317  3319  3417  3536  3655  3774  3897  4019  4141  4263  4385  4507
                          4629   4751  4875  5000  5125  5250  5361  5365  5444  5446  5529  5531  5613
                          5615   5697  5699  5799  5919  6039  6159  6284  6409  6534  6659  6762  6764
                          6847   6849  6954  7194  7217  7291  7332  7344  7380  7382  7459  7472  7519
                          7521   7635  7637  7751  7753  7867  7869  7972  8036  8067  8077
RECAL  = 000013           1094#
RESREG= 104414            8628   9205#
RESTRT  002040            1210   1589#
RESVEC= 000010            1050#
RKASOF= 000016            1077#  1798  1891  1985  2106  2207  2331  2455  2579  2703  2828  2960  3092
                          3224   3337  3435  3554  3673  3792  3915  4037  4159  4281  4375* 4376  4454
                          4456   4497* 4498  4576  4578  4619* 4620  4698  4700  4741* 4742  4820  4822
                          4899   5024  5149  5274  5380  5464  5549  5633  5717  5823  5943  6063  6183
                          6308   6433  6558  6683  6782  6867  7400  7539  7655  7771  7887
RKBA   = 000004           1072#  1788  1881  1967* 1968  2035  2052* 2054  2096  2197  2303* 2304  2382
                          2384   2427* 2428  2506  2508  2551* 2552  2630  2632  2675* 2676  2754  2756
                          2810   2942  3074  3206  3322  3423  3542  3661  3780  3903  4025  4147  4269
                          4391   4513  4635  4757  4881  5006  5131  5256  5350* 5353  5449  5534  5618
                          5702   5805  5925  6045  6165  6290  6415  6540  6665  6767  6852  7385  7524
                          7640   7756  7872
RKCS1  = 000000           1070#  1782  1845  1874* 1875  1938  1966* 1974  2051* 2053* 2082* 2090  2152*
                          2181*  2191  2253* 2297* 2312  2383* 2421* 2436  2507* 2545* 2560  2631* 2669*
                          2684   2755* 2794* 2800* 2801  2884  2885* 2886  2926* 2932* 2933  3016  3017*
                          3018   3058* 3064* 3065  3148  3149* 3150  3190* 3196* 3197  3280  3281* 3282
                          3313*  3316  3403* 3416  3487* 3522* 3535  3606* 3641* 3654  3725* 3760* 3773
                          3844*  3881* 3896  3967* 4003* 4018  4089* 4125* 4140  4211* 4247* 4262  4333*
                          4369*  4384  4455* 4491* 4506  4577* 4613* 4628  4699* 4735* 4750  4821* 4858*
                          4874   4944* 4983* 4999  5069* 5108* 5124  5194* 5233* 5249  5319* 5348* 5351*
                          5360   5440* 5443  5525* 5528  5609* 5612  5693* 5696  5783* 5798  5869* 5903*
                          5918   5989* 6023* 6038  6109* 6143* 6158  6229* 6263* 6283  6350* 6388* 6408
                          6475*  6513* 6533  6600* 6638* 6658  6725* 6758* 6761  6843* 6846  6945* 6954*
                          7194*  7217* 7257* 7266* 7290* 7291* 7292* 7293* 7327* 7330  7341* 7342  7375*
                          7379   7457  7470  7483* 7515* 7518  7631* 7634  7747* 7750  7863* 7866  7963*
                          7970   7982  7994  8013  8034  8045* 8058* 8065  8074* 8075  8101* 8110* 8135*
                          8154*  8156* 8160* 8191* 8203* 8221*
RKCS2  = 000010           1074#  1803  1851  1896  1944  1990  2111  2212  2337  2461  2585  2709  2834
                          2966   3098  3230  3342  3441  3560  3679  3798  3921  4043  4165  4287  4409
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
                    4531    4653    4775    4864*   4865    4943    4945    4989*   4990    5068    5070    5114*   5115
                    5193    5195    5239*   5240    5318    5320    5352*   5385    5469    5554    5638    5722    5829
                    5949    6069    6189    6314    6439    6564    6689    6787    6872    7329    7343    7408    7458
                    7471    7547    7663    7779    7895    7971    7983    7995    8014    8033    8063    8076
RKDA   = 000006     1073#   1793    1886    1980    2101    2183*   2185    2254    2325    2449    2573    2697    2822
                    2954    3086    3218    3332    3429    3548    3667    3786    3887*   3888    3966    3968    4009*
                    4010    4088    4090    4131*   4132    4210    4212    4253*   4254    4332    4334    4403    4525
                    4647    4769    4893    5018    5143    5268    5375    5459    5544    5628    5712    5817    5937
                    6057    6177    6302    6427    6552    6677    6777    6862    7395    7534    7650    7766    7882
RKDB   = 000024     1079#   7328    7378*   7449    7469    7517*   7588    7633*   7704    7749*   7820    7865*   7936
                    7966*   7981*   7993*   8006    8012    8032    8060*   8111    8155    8200
RKDCYL= 000020      1078#   1819    1912    2006    2127    2228    2355    2479    2603    2727    2852    2984    3116
                    3248    3358    3459    3578    3697    3816    3939    4061    4183    4305    4427    4549    4671
                    4793    4916    5041    5166    5291    5401    5485    5570    5654    5738    5789*   5790    5868
                    5870    5909*   5910    5988    5990    6029*   6030    6108    6110    6149*   6150    6228    6230
                    6332    6457    6582    6707    6803    6888    7424    7563    7679    7795    7911
RKDS   = 000012     1075#   1809    1902    1996    2117    2218    2344    2468    2592    2716    2841    2973    3105
                    3237    3348    3448    3567    3686    3805    3928    4050    4172    4294    4416    4538    4660
                    4782    4905    5030    5155    5280    5391    5442*   5475    5560    5644    5728    5836    5956
                    6076    6196    6321    6446    6571    6696    6793    6878    7414    7553    7669    7785    7901
RKECPS= 000030      1083#   1839    1932    2025    2146    2247    2376    2500    2624    2748    2873    3005    3137
                    3269    3377    3480    3599    3718    3837    3960    4082    4204    4326    4448    4570    4692
                    4814    4937    5062    5187    5312    5420    5504    5589    5673    5757    5862    5982    6102
                    6222    6343    6468    6593    6718    6822    6845*   6907    7443    7582    7698    7814    7930
RKECPT= 000032      1084#   1834    1927    2020    2141    2242    2371    2495    2619    2743    2868    3000    3132
                    3264    3372    3475    3594    3713    3832    3955    4077    4199    4321    4443    4565    4687
                    4809    4932    5057    5182    5307    5415    5499    5584    5668    5752    5857    5977    6097
                    6217    6338    6463    6588    6713    6760*   6817    6902    7438    7577    7693    7809    7925
RKER   = 000014     1076#   1814    1907    2001    2122    2223    2349    2473    2597    2721    2846    2978    3110
                    3242    3353    3453    3572    3691    3810    3933    4055    4177    4299    4421    4543    4665
                    4787    4910    5035    5160    5285    5396    5480    5527*   5565    5649    5733    5841    5961
                    6081    6201    6326    6451    6576    6701    6798    6883    7419    7558    7674    7790    7906
RKMR1 = 000026      1080#   1824    1917    2011    2132    2233    2361    2485    2609    2733    2858    2990    3122
                    3254    3363    3465    3584    3703    3822    3945    4067    4189    4311    4433    4555    4677
                    4799    4922    5047    5172    5297    5406    5490    5575    5659    5743    5847    5967    6087
                    6207    6269*   6270    6349    6351    6394*   6395    6474    6476    6519*   6520    6599    6601
                    6644*   6645    6724    6726    6808    6893    7429    7568    7684    7800    7916
RKMR2 = 000034      1081#   5611*
RKMR3 = 000036      1082#   5695*
RKPRI  = 002002     1570#   1715*   7182    7207    7213
RKSPAR= 000022      1085#   3315*
RKVEC  = 002000     1569#   1713*   1714*   7118    7180    7205*   7220*   7242    7258    7274    7294    7309    8102
                    8121*   8136    8157    8173    8192    8202*   8222    9218
RKWC   = 000002     1071#   2083*   2084    2153    2182*   2202    2302*   2319    2426*   2443    2550*   2567    2674*
                    2691    2799*   2816    2931*   2948    3063*   3080    3195*   3212    3314*   3327    3408*   3409
                    3486    3488    3527*   3528    3605    3607    3646*   3647    3724    3726    3765*   3766    3843
                    3845    3886*   3909    4008*   4031    4130*   4153    4252*   4275    4374*   4397    4496*   4519
                    4618*   4641    4740*   4763    4863*   4887    4988*   5012    5113*   5137    5238*   5262    5349*
                    5370    5441*   5454    5526*   5539    5610*   5623    5694*   5707    5788*   5811    5908*   5931
                    6028*   6051    6148*   6171    6268*   6296    6393*   6421    6518*   6546    6643*   6671    6759*
                    6772    6844*   6857    7376*   7390    7516*   7529    7632*   7645    7748*   7761    7864*   7877
RLS    = 000010     1123#
SAVFLG  002016      1579#   1716    1724*   6936*   6966*   7110*   7126*   7148*   7161*
SAVREG= 104413      8577    9204#
SAVSWR  002026      1583#   9136*   9155
SAVVEC  067754      1718    6930    6960    7104    7120    7142    7155    9884#
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```
SCLR  = 000040          1125*  4956  5081  5206  5331  5352
SCOP1 = 104415          2161   2391  2515  2639  2763  2893  3025  3157  3289  3496  3615  3734  3853
                        3975   4097  4219  4341  4463  4585  4707  4829  4952  5077  5202  5327  5877
                        5997   6117  6237  6362  6487  6612  6737  7594  7710  7826  7942  9206*
SCOP1$  056124          8449*  9206
SEEK  = 000017          1096*
SELDRV= 000001          1089*
SILCNT  002022          1581*  7965*  7980*  7990  7992*  8003*  8025*  8026  9223  9226
SILO    070754          7964   8004  9885*
SKI   = 000002          1140*
SPACE2  062161          8611   8623  9342*
SPAR  = 020000          1115*  2803  2935  3067  3199
SPDLSS= 000020          1162*
SRTFLG  002004          1571*  1586*  1589*  1592*  1665
SRTSPL= 000011          1093*
STACK = 001100           954*  1594  1606  8305  8639  9152
START   002050          1209   1592*
START1  002054          1587   1590  1593*
STKLMT= 177774           965*
SVAL  = 100000          1170*
SWR     001140          1273*  1604  1626*  1628  1634*  1641*  1656  8301  8324  8338  8341  8356  8363
                        8449   8531  8538  8550  8554  8630  8876  8913*  9136  9155*
SWREG   000176          1207*  1634  1656  8876  8889
SW0   = 000001          1018*
SW00  = 000001          1008*  1018
SW01  = 000002          1007*  1017
SW02  = 000004          1006*  1016
SW03  = 000010          1005*  1015
SW04  = 000020          1004*  1014
SW05  = 000040          1003*  1013
SW06  = 000100          1002*  1012
SW07  = 000200          1001*  1011
SW08  = 000400          1000*  1010
SW09  = 001000           999*  1009
SW1   = 000002          1017*
SW10  = 002000           998*
SW11  = 004000           997*
SW12  = 010000           996*  8630
SW13  = 020000           995*
SW14  = 040000           994*
SW15  = 100000           993*
SW2   = 000004          1016*
SW3   = 000010          1015*
SW4   = 000020          1014*
SW5   = 000040          1013*
SW6   = 000100          1012*
SW7   = 000200          1011*
SW8   = 000400          1010*
SW9   = 001000          1009*  8301  8449
S.CLR = 000400          1195*
S.FMT = 001000          1196*
S.PACK= 004000          1198*
S.RECL= 000040          1192*
S.RTC = 000200          1194*
S.SEEK= 000020          1191*
S.STSP= 000100          1193*
```

```
S.UNLD= 002000           1197#
TBITVE= 000014           1051#
TKVEC = 000060           1058#
TPVEC = 000064           1059#
TRAPPC  002024           1582#   8298*   9209
TRAPVE= 000034           1057#   1612*   1613*
TRTVEC= 000014           1052#
TST1    003062           1729    1741#   8383
TST10   006702           2255    2292#   8390
TST11   007530           2395    2416#   8391
TST12   010356           2519    2540#   8392
TST13   011202           2643    2664#   8393
TST14   012026           2767    2788#   8394
TST15   012714           2899    2920#   8395
TST16   013604           3031    3052#   8396
TST17   014470           3163    3184#   8397
TST2    003154           1776#   8384
TST20   015354           3295    3308#   8398
TST21   016062           3379    3398#   8399
TST22   016700           3500    3517#   8400
TST23   017516           3619    3636#   8401
TST24   020332           3738    3755#   8402
TST25   021146           3857    3876#   8403
TST26   021774           3979    3998#   8404
TST27   022622           4101    4120#   8405
TST3    003714           1853    1870#   8385
TST30   023446           4223    4242#   8406
TST31   024272           4345    4364#   8407
TST32   025120           4467    4486#   8408
TST33   025746           4589    4608#   8409
TST34   026572           4711    4730#   8410
TST35   027416           4833    4852#   8411
TST36   030266           4958    4977#   8412
TST37   031136           5083    5102#   8413
TST4    004454           1946    1961#   8386
TST40   032002           5208    5227#   8414
TST41   032646           5333    5345#   8415
TST42   033412           5422    5435#   8416
TST43   034120           5506    5520#   8417
TST44   034626           5591    5604#   8418
TST45   035334           5675    5688#   8419
TST46   036042           5759    5778#   8420
TST47   036670           5881    5898#   8421
TST5    005210           2036    2048#   8387
TST50   037516           6001    6018#   8422
TST51   040342           6121    6138#   8423
TST52   041166           6241    6258#   8424
TST53   042032           6366    6383#   8425
TST54   042676           6491    6508#   8426
TST55   043540           6616    6633#   8427
TST56   044402           6741    6753#   8428
TST57   045110           6824    6838#   8429
TST6    005306           2055    2073#   8388
TST60   045616           6909    6928#   8430
TST61   046672           7112    7128    7149    7178#   8431
TST62   047156           7255#   8432
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TST63   047264            7288#   8433
TST64   047406            7324#   8434
TST65   047572            7351    7373#   8435
TST66   050474            7506#   8436
TST67   051274            7598    7622#   8437
TST7    006116            2163    2176#   8389
TST70   052074            7714    7738#   8438
TST71   052672            7830    7854#   8439
TST72   053470            7946    7960#   8440
TST73   054206            8055#   8441
TST74   054404            8084    8098#   8442
TST75   054572            8151#   8443
TST76   054706            8188#   8444
TYPDS = 104405            8253    8260    9196#
TYPE  = 104401            1650    1667    1670    1677    1681    1689    1698    8247    8254    8261    8533    8541    8587
                          8588    8592    8593    8600    8611    8613    8623    8624    8626    8634    8686    8782    8857
                          8887    8888    8891    8904    8915    8934    8987    8993    8998    9002    9007    9008    9010
                          9013    9017    9081    9083    9153    9192#
TYPERR  056616            8540    8577#
TYPOC = 104402            1669    1680    1697    8608    8890    9193#
TYPON = 104404            9195#
TYPOS = 104403            9194#
T.ASOF  001716            1538#
T.BA    001704            1533#
T.CS1   001700            1531#   7330#   7337    7342#   7346    7457#   7461    7470#   7479    7970#   7974    7982#   7984
                          7994#   7997    8013#   8016    8034#   8041    8065#   8071    8075#   8079    9221    9223    9226
T.CS2   001710            1535#   7329#   7333    7343#   7350    7458#   7465    7471#   7474    7971#   7977    7983#   7987
                          7995#   8000    8014#   8019    8033#   8037    8063#   8068    8076#   8083    9221    9223    9226
T.DA    001706            1534#
T.DB    001722            1540#
T.DCYL  001720            1539#
T.DS    001712            1536#
T.ECPS  001732            1544#
T.ECPT  001734            1545#
T.ER    001714            1537#
T.MR1   001724            1541#
T.MR2   001726            1542#
T.MR3   001730            1543#
T.SPAR  001736            1546#
T.WC    001702            1532#
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UNLOAD= 000007            1092#
UNS   = 040000            1153#
UPE   = 020000            1133#   4867    4992    5117    5242
VV    = 000100            1164#
WCE   = 040000            1134#   4867    4992    5117    5242
WLE   = 004000            1150#
WRDATA= 000023            1098#
WRHEAD= 000027            1100#
WRL   = 004000            1167#
WRTCHK= 000031            1101#
WRTGAT= 040000            1186#   6272    6397    6522    6647
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                        1944*  1945   1968*  1969   1974*  1975   1980*  1985*  1990*  1991   1996*  2001*  2006*
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        5208    5333    5422    5506    5591    5675    5759    5881    6001    6121    6241    6366    6491    6616    6741
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 RUN-TIME RATIO: 1094/77=14.1
 CORE USED:  31K  (61 PAGES)

 DOCUMENT PAGES:  207

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